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NO. I.

NOTES ON A CAPTIVE HERMIT THRUSH.

BY DANIEL E. OWEN.

JUNE 26, 1896, while exploring a small patch of mixed growth in search of birds, I fell in with a young Hermit Thrush, accompanied by its parents. The young bird was just from the nest and had such ill control of its faculties and muscles that, ultimately, after a laborious flight of seven or eight yards, it alighted at my very feet. I captured the youngster, by dropping my hat over it, and having tied the bird, loosely, in my handkerchief, carried it home in my collecting basket. For the next five weeks, the Thrush was my constant study companion, and during this period discovered so many attractive traits that when I came to restore my captive to its native wood, the parting was, to one of us, the occasion of real regret.

I domiciled my little orphan in a large, old-fashioned canary cage which was allowed to stand, most of the time, on the sill of an open window. At first the Thrush objected to this durance vile, expressing its distaste by ejaculatory 'peeps' which, June 28, attracted to the roof, near the window, a sympathetic Chipping Sparrow, and caused a Robin in a neighboring tree to sound a loquacious and protracted alarm. But the imprisoned bird



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seemed soon to realize that remonstrance was of no avail, and by June 29 its impatience had given way to a philosophic serenity and composure that rarely were disturbed during the remainder of our acquaintance.

It was astonishing to see how quickly and well the Thrush adjusted itself to novel conditions. By the twenty-ninth of June, that is, after three days of confinement, the bird was not only on the best of terms with me, but we had learned to communicate. I found that a very gentle kissing sound, made with the lips, at once attracted its attention, causing it to ruffle its feathers, as young birds do on the approach of the old ones, and giving rise to an expectant attitude generally. Having secured its attention, I had then only to open the cage door, when the bird would come out, hop into my lap, and open wide its mouth. In a few days more, the Thrush had learned my step and my whistle. Its recognition of these sounds was voiced in a succession of chirps, which, usually, had an imperative tone, or a coaxing note, and indicated an empty stomach. If my absence had been rather long and the bird's meal unduly delayed, its piping voice took on a mandatory key which bordered on imprecation. When well fed and comfortably at rest on its perch, the little fellow had a habit of trilling softly, as if talking to itself. This trill had a remarkable property of ventriloquism that led me, at first, to ascribe the notes to a bird out of doors; but I soon learned their author and came to take pleasure in their assurance of genuine contentment.

When captured, my Thrush was unable to feed itself, so I had to make my bungling fingers do the work of a mother-bird's dexterous bill. Knowing that it would be a good deal of a task to furnish, altogether, food of the same nature as that provided by the parent birds, I made the experiment of substituting, to some extent, for grubs, earthworms, and insects, raw beef cut into bits about one centimeter long by half a centimeter wide. Before inserting the pieces of meat between the young bird's gaping mandibles, I dipped them in water by way of lubrication, in order that they, readily, might slip down the bird's throat. This was the more necessary because the bird, often, would refuse to swallow unless the food had been placed far back in the mouth, at the very entrance to the gullet. Moreover, it seemed well to supply

water, in some way, to the digestive tract of the Thrush, which for many days refused to drink. Although the bird bathed almost daily, and once, at least, bathed twice in one day, up to July 31, when observation was discontinued, it drank in my presence but three times. These exceptions to its rule of abstinence occurred during some hot weather toward the end of its confinement.

The young Thrush took kindly to its diet of meat. June 28, between 8 A. M. and 7 P. M., it was fed eight times and swallowed 27 bits of meat. June 29, between 8 A. M. and 8 P. M., it was fed ten times and ate 25 pieces of meat. In order to get a more definite idea of the appetite that demanded this amount of solid nourishment, I began, July 4, to weigh the bird's food, as well as the bird itself. As this little investigation proceeded, it became apparent that the bird's weight fluctuated greatly within a space of twenty-four hours. Thus July 4, at night, the Thrush weighed 30 grammes, while in the morning of July 5 it weighed but 25.5 grammes, a loss during the night of 4.5 grammes. To appreciate the significance of this variation, let it be noted that the loss in a single night was 15 per cent of the total weight, so that if a 150 pound man were to suffer the same diminution in avoirdupois, between going to bed and rising, he would lose no less than 22.5 pounds.

In order to get comparable figures, I made it a practice, therefore, after July 5, to weigh the bird in the morning. For the five days, July 4 to July 8, inclusive, the bird's average weight was 27.7 grammes, and the average weight of meat eaten daily, 13.56 grammes. These figures do not convey a strictly accurate idea of the bird's appetite, because I was absent from my study several hours daily, and the Thrush, undoubtedly, would have eaten more if assiduously tended. For example, July 7, between the hours of 11.30 A. M. and 8.45 P. M., being constantly looked after, the bird ate 12 grammes of meat, nearly as much as its average for a whole day; and although my record indicates that it ate about 50 per cent of its weight in meat, yet I feel certain that under the most favorable conditions it would have made way with at least its own weight of raw beef, daily.

While meat formed the staple diet of my Thrush, during the first weeks of its confinement, and was used, more or less, throughout,

I began, early, to experiment with such food as I thought likely would have fallen to the lot of the Thrush had it been left to the care of its parents. Thus, July 1, I fed to the bird a number of earthworms. For convenience' sake, I cut a few of the biggest worms into two or three pieces, each of which was as large as an ordinary worm. Counting these pieces as whole worms, and this is legitimate, considering their size, the Thrush ate 19 worms between the hours of 8.30 A. M. and 1 P. M., four hours and a half. This is at the rate of 4 worms per hour, or one worm every fifteen minutes. These figures, again, do not represent the capacity of the bird truthfully because I had not become expert in feeding, and after I had made several unsuccessful efforts to thrust the wriggling object in my fingers down the bird's throat, it often would shut its mouth in disgust and refuse the worm.

July 3 came the discovery that the Hermit Thrush is fastidious in its diet. At 1.45 on that day, the bird weighed 25.2 grammes. At the same hour, I weighed out 7.5 grammes of worms taken from a manure heap. In 30 minutes, the bird had eaten four grammes of the worms. If it had continued at the same rate, it would have eaten its own weight in worms in 3.15 hours; but it soon appeared that the bird did not relish the flavor of these dunghill delicacies. It made a great splutter in eating the worms and frequently rejected them with every symptom of nausea and abhorrence, wiping its bill on the nearest object, which was, generally, my hand. So I threw away the remainder of this lot of worms and renewed the experiment with five grammes of worms taken from cool, black, garden mould. These the bird dispatched, with evident relish, in just 30 minutes more. At this rate, it would have eaten its own weight of acceptable worms in about two hours and a half! My record of later experiments, however, indicates that the Thrush would not prove quite so voracious a songster. Just how long it would take the young bird to eat its own weight in worms, I never accurately ascertained. To know this would, indeed, be interesting, but it would be of small scientific value since the conditions of captivity differ widely from those surrounding a bird in the wild state.

The results of the raw meat and the worm experiments caused me to infer a rapid digestion on the part of the young Thrush. It

was not long before I had an opportunity of verifying this presumption. July 11, I was shown, in a blueberry patch, a nest which I took to be that of a Hermit Thrush. Judging that the location of this nest might imply a fondness for blueberries on the part of the Thrush, I introduced a few berries, July 13, into my bird's cage. The avidity with which they were seized and swallowed showed that my conjecture had been well founded. The coloring matter of the berries dyed the bird's excretions, and it occurred to me that this fact furnished a ready method of finding the length of time required by the Thrush to digest blueberries. The test was made July 25. At 12.56 P. M. of that day, the bird voided white excrement and was fed, at once, with blueberries. At 2.28 P. M., one hour and thirty-two minutes later, it dropped blue excrement mingled with berry seeds. If this experiment is trustworthy, and I see no reason to doubt the accuracy of its method, the time required for a blueberry to traverse the digestive tract was, practically, one hour and a half.

I have said that, at first, my little captive was unable to feed itself. Generally speaking, this is true; but the bird soon acquired a habit of picking up occasional morsels and at the time of its release, July 31, it could get along very well without assistance, although, even then, it preferred to be fed.

The bird began to peck at imaginary objects, in a desultory way, June 29. In the morning of July 1, while the Thrush was on a window sill, a favorite perch when liberty had been granted it, I put beside it a piece of earth-worm. It eyed the worm for a moment and then attacked it in dead earnest. In its enthusiasm, the bird lost its balance and fell off the sill: but later, when it had regained its equilibrium, mental and physical, it managed to get away with several worms unassisted. July 3, the Thrush spent some time on the floor of my study, running about, sometimes making short flights, and displaying, withal, a great deal of curiosity. My shoes, particularly the lace fastenings, the carpet tacks, and a pair of ring staples on a box, were all critically examined and pecked at; but the favorite subject of investigation was a small piece of waste paper that lay on the floor. The paper was red on one side and white on the other and was picked up and tossed about very frequently. July 8, the bird discovered a fondness for

house flies, to which, when placed in its cage, dead or disabled, it helped itself. Later it developed considerable skill as a flycatcher and no insect was safe within the wires of its cage. The bird's predilection for pulling over paper grew on it. It was very amusing to see it alight on my study table and essay, forthwith, to look beneath each separate sheet of paper lying thereon. This habit I took to be a display of instinct, which, exercised in the woods, would lead the bird to overhaul leaves and other similar rubbish in search of food.

The behavior of the Thrush at various times gave me several hints as to the habits of its species in the wild state. For example, it ate most greedily in the morning and at night, thus corroborating the general testimony of observers that birds take a rest in the middle of the day. Again, as dusk came on, the bird became restless and fluttered about its cage so recklessly that, at times, I was obliged to cover the cage with a cloth and set it in a dark corner. After some study of the bird's movements, I was led to attribute its unrest at evening to a desire for a high perch. To test my inference, I one evening liberated the bird. It flew about the study, close to the ceiling, and, finally, went to roost on a high picture. This proved that I had, in fact, in these nightly flutterings, an evidence of the instinct that leads birds to seek high perching places, at night, as a safeguard against many dangers. It struck me as especially interesting in the case of the Hermit Thrush which builds its nest on the ground.

My captive Thrush slept with its head under its wing, in the orthodox fashion, and took occasional naps during the day. It proved a meditative bird and would sit for half an hour at a time with an air of deep abstraction. As it dozed on my study table, June 30, I counted its respirations and found them to be from 80 to 85 per minute. When it is reflected that the rate of human respiration ranges from about 44 at birth to 15 at maturity, the fact that the bird is a high pressure organism may be appreciated.

My Hermit Thrush belied its name by being very fond of society. Occasionally, I allowed the bird the freedom of my study. At such times it preferred to keep near my chair, often alighting on my head, or on the table upon which I was writing. It would allow itself to be held in the hand, but was rather ill at

ease, and pruned itself carefully on being released. It bathed regularly, and though it kept its cage in a litter, was scrupulous about its plumage. When taken, its tail feathers had just started. They grew rapidly, and by July 31 had attained their full length. As soon as the appendage had gained sufficient length to be used in gesticulation, the bird accompanied its 'peeping' cry with flicks of the tail, after the manner of a Robin. Some of its attitudes, as it stood with uplifted tail, were very like those of the Catbird.

In concluding this record it remains to speak of the bird's method of eating earthworms, for it was method, indeed. The bird began by worrying the worm, much as a cat does a mouse, nipping, pecking, and slatting its victim violently. The attack seemed to be directed, mainly, at the extremities of the worm. Thus, in one case, the head of the worm was pecked ten times, the tail seventeen times, and the middle twice. The worm, of course, squirmed and wriggled vigorously, at first; but, after a time, lost, in a measure, the power of motion. Now and then, the bird's beak would miss the worm, or would slip off. At such times the mandibles came together with an audible snap, conveying a suggestion of the torturing pinches to which the unfortunate worm was being subjected. The pummeling and nipping having gone on for from one and a half to three and a half minutes, the Thrush would next essay to swallow the worm, beginning, almost invariably, at the tail. This mode of attack may have been prompted by a chivalrous desire to give the poor worm as much of a chance as possible. If so, its object was, in a measure, gained, for, in the case of a big worm, the process of swallowing was distressingly prolonged by the efforts of the worm to escape, in which it often succeeded so far as to crawl out of the bird's mouth almost as fast as it was drawn in. The outcome of the struggle was always in the bird's favor, although in one instance, that I timed, the head of the worm visibly protruded from the bird's throat for seven minutes and a half after swallowing began.

The fact that the Thrush swallowed its worms tail first gains something in interest when the structure of the earthworm is taken into account. As is well-known, the earthworm's body consists of from 100 to 200 rings, or segments. Every segment, except the

anterior two or three and the last. affords insertion to four groups of short bristles, to which muscles are attached, and by means of which the worm progresses. The bristles may be made to point in either direction, according as the worm wishes to advance or retreat. When pointed toward the tail, they hold the worm as it crawls ahead; when directed ahead, they give foothold for retrograde movement.

Now a person would suppose that the presence of several hundred little bristles, all pointing the 'wrong way,' would interfere with easy and pleasurable deglutition; and inasmuch as a worm, normally, crawls ahead, and not back, I expected to see my Thrush swallow worms head first, when, it is to be presumed, the bristles in question would not retard the process. As a matter of fact the contrary method, as noted above, was followed. Once in a while, a small worm was seized by the middle and doubled, or taken by the head; but careful observation, extending over several days, brought out so few instances of this kind that I am convinced it was a rule with the bird to swallow earthworms tail first. The fact that the worm often made some progress in its attempt to escape from the bird's mouth would indicate that the bristles were in working order, despite rough treatment, and that they were pointed back, toward the tail of the worm. From this we must infer, either that the bird was indifferent to the rasping of the bristles on the walls of its throat, or that the sharp resistance they exhibited added spice and flavor to the writhing morsel. But, for all that, any explanation is merely conjecture, and why the Hermit Thrush should choose to begin its meal with the tail of its victim remains a curious, though not a profound, subject for speculation.

RECENT INVESTIGATIONS OF THE FOOD OF EUROPEAN BIRDS.

BY F. E. L. BEAL.

A PAPER upon the food of the Rook (*Corvus frugilegus*) by Dr. Hollrung, appears in the Seventh Annual Report of the Experi-

ment Station at Halle.¹ Another paper by Mr. John Gilmour² of Fifeshire, Scotland, treats of the food of the Rook, the Wood Pigeon (*Columba palumbus*) and the Starling (*Sturnus vulgaris*). These two papers are interesting contributions to the literature concerning the food of three rather important birds, but they can only be considered as giving glimpses of a field in which much remains to be done.

Dr. Hollrung gives the following statement of the food found in 131 stomachs of Rooks killed in April, May and June, within a narrow limit of territory: Larvae of *Zabrus gibbus*, 48; wire worms (Elaterid larvæ), 20; grub worms, 253; May beetles, 160; weevils (*Otiorynchus*), 1688; weevils (*Tanymecus*), 22; snails; mice, 17; grains of wheat, 420; grains of barley, 471; grains of oats, 190; cherries, 22.

From these examinations Dr. Hollrung has arrived at the following general conclusions:

"1. The Rooks examined have proved on the whole neither exclusively useful nor exclusively injurious. While 25 per cent of the Rooks' stomachs contained no vegetable matter, there were only two cases in 131 where no animal matter was found.

"2. Their food consisted for the most part (about 66 per cent) of animal matter, such as mice, larvæ of the grain-eating Carabid (*Zabrus gibbus*), grub worms (*Melolontha vulgaris*), dung beetles (*Aphodius spec.*), and clover weevils (*Otiorynchus ligustici*). The vegetable food was made up of wheat, oats, and barley, and cherries.

"3. The harm done by the Rooks on the one hand was perfectly balanced, and even considerably outweighed on the other hand by the useful services rendered.

"4. The Rooks feed principally on slowly moving insects."

In the investigations made by Mr. Gilmour the stomachs of 336 birds were examined, not counting 19 that were empty. They

¹ Untersuchungen über den Mageninhalt der Saatkrähe (*Corvus frugilegus* L.) Dr. M. Hollrung. 7ter Jahresbericht Versuchs-station f. Pflanzenschutz zu Halle a. S. 1895, pp. 5-26.

² An inquiry Concerning the Relations of Certain Birds to the Agricultural Interest, as shown by their Diet. John Gilmour. Trans. Highland and Agri. Soc. Scotland, 1896. Fifth Series, Vol. VIII, pp. 21-113.

were evenly distributed through the twelve months of the year, but were all killed in a restricted area. Mr. Gilmour thinks, however, that the results obtained would not differ greatly if they had been collected over a larger district, as the one in question may be considered as fairly typical of southern Scotland.

The food found in the 336 stomachs was classified under four heads, viz: (1) insects and grubs, (2) roots, (3) cereal grains and husks, (4) miscellaneous. Of these the third is of the greatest importance, both from its economic interest and from the fact that it is the food most often taken. Mr. Gilmour reckons his percentages from the number of times that the bird has taken the food, and from this concludes that grain and husks constitute 58 per cent of the Rook's food. Insects and grubs, reckoned in the same way, amount to 23 per cent. It can hardly be claimed that this is the most accurate method of calculating the relative amounts of food found in a bird's stomach. Birds are fond of eating a great many different things, the aggregate quantity of which may be small, just as human beings eat a little butter and sugar at nearly every meal, but never make a whole dinner of either. To illustrate, in an examination of 2258 stomachs of the Crow Blackbird corn amounted to 35 per cent of the food by bulk, but when reckoned by the number of times taken it aggregated 52 per cent.

Insects and grubs are mostly eaten by the Rook from May to August inclusive, but only in June and July do they amount to more than any other item. As most of the insects are said to be useful species, Mr. Gilmour is of the opinion that the harm done by their destruction "can scarcely be considered as counter-balanced by the grub consumpt." On the whole, his verdict is against the Rook, for he says: "Taken altogether, the Rook has almost no claim to agricultural regard. . . . Is not the broad fact clear that grain is the staple of staple foods for Rooks? Lusting for it as these birds do, we may rest assured that the Rook will attack and prey freely upon the farmer's grain whenever and wherever favourable opportunity is presented; whether soft or hard, whether sprouted or unsprouted, whether ripe or unripe, whether in dung or on stubble-field, is of little moment to the Rook." While he acknowledges that much of this grain was taken

from dung, or consisted of scattered kernels picked up in stubble-fields, he still considers that it must all be counted against the birds, as it shows their taste for grain. This is not fair. Grain so obtained has no value to the farmer and should not be reckoned as a loss. As a matter of fact, Mr. Gilmour's own tables show that the Rooks *do not* "attack and prey freely upon the farmer's grain whenever and wherever favourable opportunity is presented." Many stomachs taken in harvest time show no grain, and a large proportion of them contained some insects. It cannot be claimed that any of them lacked opportunity to eat grain, for all were collected practically from the same locality.

In comparing the results obtained by these investigators some important differences are noted, and it is seen that the two have drawn almost diametrically opposite conclusions. The Rooks examined by Dr. Hollrung contained 17 mice, an article of food which Mr. Gilmour does not seem to have found in his. The insects, unlike those eaten by the Scottish Rooks, were mostly noxious species whose destruction was a decided benefit to the farmer. While grain was eaten to some extent by Dr. Hollrung's Rooks, it does not appear to constitute an important article of their diet economically considered.

Mr. Gilmour assumes that the Rooks taken in Fifeshire fairly represent those of the whole of the Lowlands of Scotland in their food habits, an assumption that may possibly be true, but Dr. Hollrung's investigation shows that no such supposition will hold for extensive areas of country. Stomach examination as well as field observation shows more and more that the kind of food taken by birds is determined by availability as well as taste; consequently the food of any particular species will vary to a certain extent in different localities.

The Common Crow (*Corvus americanus*) represents in this country, as nearly as may be, the economic position occupied by the Rook in Europe, and a few points of comparison in their food may not be without interest. The food of the Crow consists of about the same proportion of animal and vegetable matter as that of the Rook.

In the first four items of Dr. Hollrung's list the Crow and the Rook present a great similarity of taste, the *Lachnosterna* of this

country replacing the *Melolontha* of Europe. It is in the next two items, the weevils, that the Rook shines resplendent. An average of over thirteen specimens of those small but very harmful beetles in each of the 131 stomachs is certainly a splendid showing. It is singular that none of these insects were eaten by the Rooks taken in Scotland. While many of these beetles were eaten by the Crow, they do not constitute so constant and important an item as in the case of the Rook. The Crow eats a considerable number of Carabid beetles, most of which are of the more predaceous species, while those eaten by the Rook are, for the chief part, the larvæ of *Zabrus gibbus*, a very destructive grain-eating species. Grasshoppers, which are extensively taken by the Crow, are conspicuously absent from the food of the Rook.

In the varieties of vertebrates eaten, the Rook is far behind the Crow. Only seventeen mice were found in the 131 stomachs taken in Germany, and none in those collected in Scotland. In no case did any stomach contain the remains of more than one. The Crow, on the other hand, not only preys upon mice and other small mammals but even captures young rabbits, and eats many snakes, young turtles, salamanders, frogs, toads and fish. The Crow also eats many crayfish and other smaller crustaceans which do not appear in the Rook's bill of fare.

In the matter of vegetable food the Rook does not seem to indulge in any great variety. It does, however, eat some potatoes, which the Crow rarely touches. The Crow eats about every kind of grain that the country produces, besides fruit and acorns or other mast. It appears to be far more omnivorous than the Rook; in fact, it seems doubtful if there is anything eatable which a Crow will not eat, while, so far as shown, the Rook is quite exclusive.

In Mr. Gilmour's investigation of the food of the Wood Pigeon 245 stomachs were examined. They were quite evenly distributed through the year, but, like the Rooks, were all taken within a limited area. The contents of these stomachs are arranged in five groups, which, taken in the order of frequency, are as follows: (1) Cereal grains; (2) leaves; (3) other fruits and seeds; (4) roots; (5) flowers. Cereal grains were taken to the extent of 33 per cent of the year's food, by Mr. Gilmour's method of calcula-

tion, but as a great part of this was eaten in the months after August it would seem to an American farmer that it must be mostly waste grain picked up in the stubble fields. Leaves were eaten to the extent of $27\frac{1}{2}$ per cent and a large amount of these were leaves of clover. While a bird that eats clover leaves may be potentially harmful, it is evident that the birds must be wonderfully abundant in order to do the clover much damage by simply eating the leaves. A great number might possibly hurt the forage by breaking it down and sitting upon it. Besides clover leaves, the Pigeon also eats the leaves of turnip and several weeds, as well as the seeds of beans, peas, clover, turnips, weeds and some trees. Roots and underground stems (mostly potatoes) are eaten to the extent of $8\frac{1}{2}$ per cent. Mr. Gilmour's conclusions are entirely against the Pigeon. He says: "Though grain be left entirely out of court, the Pigeon stands utterly condemned by the heavy black score still standing against him for root-crop and clover-leaf destruction." While we know nothing about this bird practically, we are inclined to think that further observation and thought will serve to render the score several shades lighter.

Of the Starling, 175 stomachs were examined, collected in every month, though but few were taken in July, August, October and December. Like the Rooks and Wood Pigeons, the Starlings were all taken within a small area of country. With regard to the food in these stomachs, Mr. Gilmour says. "... Starlings are most monotonous in regard to diet. All the food-stuffs found in the crops and gizzards examined are conveniently grouped thus: (1) grubs; (2) insects, etc.; (3) cereal grains; (4) miscellaneous."

Of these the first two amount to 70 per cent of the whole food, and the third to 22 per cent. This grain is very properly not reckoned as being very valuable, as the tables show that most of it was taken after harvest time, so that the comparative usefulness of the bird is made to depend upon the character of the insect food. Mr. Gilmour does not seem to have any very definite method of determining comparative quantities of food, for he says: "The *how much* of each kind cannot, of course, be stated; but the impression which one gets from careful and close examination of the contents of any large batch of Starlings is that the

injurious species are more frequent in the birds than the useful kinds." It is gratifying to learn this, as the Starling has been introduced into America, and in time may possibly become numerous enough to be of economic importance.

Mr. Gilmour makes the following happy summation of the status of the three birds whose food habits he has investigated. "Of the Pigeon it may be said that he is an unmitigated scoundrel; of the Rook that he is a cunning rogue; but of the Starling we can say with truth that he is our natural friend, by habit and by instinct."



SOME NOTES ON THE NESTING HABITS OF THE WHITE-TAILED KITE.

BY CHESTER BARLOW.

THE White-tailed Kite (*Elanus leucurus*) is perhaps as common in certain portions of California as anywhere throughout its breeding range, and it is resident in Santa Clara County, where the genial climate and almost perennial sunshine are conducive to an abundant food supply. Santa Clara County lies south of the San Francisco Bay region, and its northern boundary is the lower shore of San Francisco Bay. The northern portion of the county consists of the 'lowlands,' which support, in many places, a luxuriant growth of willow. Toward the ranges which surround the valley there are magnificent fields of live oaks and white oaks, which have attained in many places a grand perfection. Considerable of this country is given to farming, and here the trees have been spared. Approaching the foot-hills, and all through the valley from San Jose southward, especially along the water courses, the sycamore and white oak are most commonly met with, and afford the *Buteo* tribe many available and secure nesting sites. Thus it will be seen that certain portions of Santa Clara County are peculiarly attractive to raptorial birds as breed-

ing grounds, and the White-tailed Kite is found scattered in pairs at suitable locations throughout the county.

It has been my pleasure to spend considerable time during the past few years in observing the nesting habits of several pairs of Kites, distributed at various points throughout the county, and the results tend to show considerable individuality in the respective pairs of birds. The White-tailed Kite being of unquestionable benefit, is deserving of the fullest protection, and in one locality at least I know that its usefulness is appreciated by the farmers. Its principal food in this section consists of small rodents, such as gophers, field mice and wood rats, lizards and probably in season a few grasshoppers. Mr. Henry W. Carriger, of Sonoma, Cal., who has had considerable experience with this bird, writes me of finding a freshly-killed ground squirrel lodged in a tree beneath a nest, and which had undoubtedly been captured by one of the Kites. This is probably larger game than they attack as a rule.

With the gradual settling up of the country there is no doubt but that this bird is becoming rarer each year. They are essentially birds of the valley and are rarely seen in the foothills and mountains. One pair which I have known for years and which had never failed to nest in a particular growth of live oaks each year, was missed from its accustomed haunts the past spring and could not be located anywhere in the vicinity. A wood choppers' camp had been erected in the grove and the Kites, in their gentle and unsuspecting nature, had probably fallen prey to the gun of some misguided wood chopper.

Their flight is even and graceful, often quite rapid but lacking the dash of the true Falcons. In hunting in the early morning hours both birds often go together, and they may frequently be seen hovering motionless in air, much after the manner of the Sparrow Hawk. The principal note consists of a low, plaintive, musical whistle, quite pleasing to the ear, and which is uttered both when the bird is at rest on some tree top and occasionally while it is on the wing in the vicinity of its nest.

With few exceptions I have found this Kite nesting in level or slightly rolling country where the live oak is abundant. A pair of these birds will take up their abode in a favored location

where they will remain for years, zealously guarding their domain against intruders, and nesting from year to year within a small radius, sometimes in the same tree. If their first laying of eggs be taken they will, as a rule, construct a new nest and lay a second time, and only in one instance did I find the same nest used twice in the same season.

My experience with the White-tailed Kite dates back to 1887, when a pair of birds were found in a secluded live oak pasture. They were commonly known as 'White Hawks' and it was not until several years later that I succeeded in finding my first nest. These birds frequented the same locality each year until the past season when they had disappeared, having probably been shot as mentioned. Having found several of their old nests at different times I visited the locality on April 19, 1894, having previously seen the birds among the trees. Most of the oaks averaged twenty-five to thirty feet in height and were easily accessible. After a short search a nest was discovered in the extreme top-most branch of a live oak, twenty-five feet from the ground. The nest was composed of small oak sticks and was lined with dry stubble and a little Spanish moss, and measured about one foot across. It contained three eggs, which were fresh and had evidently been deserted, as a cobweb had formed over a portion of the nest. The eggs were slightly faded from exposure to the sun, and the birds did not put in an appearance. I did not again visit the locality during the season of 1894.

Early in the season of 1895, when budding trees and bright foliage heralded an early spring, my thoughts went back to the Kites of the previous year, and though March had ushered in a cold, rainy spell, on the 17th I visited the country to ascertain if the Kites had returned to their former haunts. The day was a dark one, threatening rain, and a strange quiet pervaded the grove, in contrast to the usual varied chorus of small birds. Neither of the Kites could be seen, so I searched for the tree in which they had built the previous year, and from which I had removed the nest. My surprise was complete when a new nest was discovered built on the exact site of the former one, in the highest available crotch of the tree. From the nest one could see in all directions over the fields, and still the nest itself was securely

hidden in the leafy top of the oak, and only to be seen on close inspection from the ground beneath. At this date, March 17, the nest contained four eggs, which were warm and very slightly incubated. The parent bird was not seen until I had left the tree, and had doubtless been enjoying her morning exercise. The nest, which is a typical one, measured twelve inches across, with a depression in the center of perhaps three inches, and was composed of small dead twigs from the live oak, and lined with fine straw stubble, from the field near by. The four eggs constituting this set are of an unusual type, three of them being marked chiefly about the ends, while the fourth is streaked lengthwise more heavily than the average egg.

I did not visit the locality again until April 5, when both birds were observed sitting quietly in the top of one of the tallest trees, this time some distance from their former nest. I, however, repaired to the nest and found it to contain three eggs, it being evident that the set was not complete. On the 9th five eggs had been laid and the female quietly left the nest when I was half-way up the tree. The same nest had been used in which the first set had been laid, and the birds had added no new lining. The parent birds showed little concern, remaining quietly at a distance and giving expression to an occasional 'whistle'. The time which had elapsed between the taking of the first set of four eggs and the completion of the second set of five was twenty-three days. It seems unusual that the second laying should have consisted of five eggs, and the set itself exhibits extreme variation in coloration, the specimen with the buff ground color and dark markings being perhaps the oddest of all. The white egg and the bright reddish specimen were laid last. The eggs of this set average somewhat larger than the first laying of four eggs. The three sets of eggs to which we have thus far referred are the production of one pair of birds during the seasons of 1894 and 1895, and will, I think, if the normal types from each set be compared, show a similarity, in that the markings tend toward the ends of the eggs as a rule. Before disposing of this pair of Kites I will say that I did not visit them again during 1895, but early this year while looking over the ground I discovered another nest in a small oak, which had been used, and which leads me to believe that the birds laid a

third time and successfully reared their brood. This year the birds had disappeared, and were not located in the surrounding country, so it is evident that they had been shot after inhabiting the locality for at least ten years.

On March 24, 1895, I met my second pair of birds in a region similar to the last and where I had somewhat expected a pair might be nesting. When incubation has well begun the female is difficult to flush, and the male seems to make himself as inconspicuous as possible, so one might at times pass through a locality inhabited by the Kites and not suspect their presence. On the day in question, while walking among the trees I chanced to see a Kite flying toward a cloister of oaks half a mile distant and followed it. The bird, presumably the male, was perched on a lofty white oak, the highest in the field, where he sat quietly. Suspecting the female had a nest near by I began a careful search of the neighboring oaks and after twenty minutes' work located the nest twenty feet up in a small live oak tree. The female did not leave the nest until I had almost reached it, when she flew to a near-by tree and was joined by the male. The male began a gallant attack in defense of the nest, swooping down on me at intervals in a furious manner, being occasionally reinforced by the female, while both snapped their beaks, much after the manner of young Owls. The nest was unusually large, having evidently been used more than once. It was lined with long dry grass, and similar in other respects to the average nest. It contained five heavily-marked eggs of the usual dark type, in which incubation was far advanced, three of the eggs being slightly pipped. From the stage of incubation it is likely that the nest was constructed late in February and the eggs laid soon after. The eggs of this set average 1.80×1.31 . The clutch is now in the collection of Mr. John W. Mailliard.

This pair of birds after being robbed removed to a locality half a mile away, where they soon began to construct a new nest in a small oak, twenty feet from the ground. One of the birds was observed to alight in the top of a tree, where it broke off a twig from among some dead limbs, when it flew back to the newly begun nest and deposited it. Finally the nest was completed and four eggs were laid. These I collected on April 15, the female leaving

the nest on my approach. The eggs of this set average smaller than those of the first laying of the same birds, and one specimen is particularly bright in coloration. The parent bird attacked me as in the first instance, but soon gave up the battle and alighted near by. This set is now in the collection of Mr. C. W. Crandall.

This spring I was interested to see if these birds would prove as early breeders as in 1895, so on March 10, 1896, I visited their domain and found that the last year's nest had been added to and freshly lined, and four eggs deposited. The nest was twenty feet from the ground. Incubation was fully one-third advanced, which corresponded approximately as to date with the laying of the former season. The birds showed the same aggressive spirit, which in itself seems a trait amply sufficient to distinguish this particular pair. This set of eggs is also in Mr. Crandall's collection.

The Kites now repaired to their location of the previous year, where they built a new nest in a scraggly live oak twenty-five feet from the ground, and which contained four eggs on March 29. The set was not collected. Nineteen days had been required to build a new nest and deposit a set of four eggs, while in 1895 twenty-two days were occupied in performing the same duties. This pair of birds have never used a nest the second time during the same season. I fully expect to find them amid their familiar surroundings next spring, and judging from the occurrence of white eggs in their layings, I consider that they have occupied the present locality for many years.

On April 13, 1895, a third pair of Kites were found occupying a grove of trees in a grainfield, where there was a plentiful food supply. Their uneasy actions indicated a nest in the vicinity, and careful search revealed an old one in the top of a tall oak. It contained numerous dried-up pellets, which are found in nests in which a brood has been reared, and which are no doubt ejected by the young after being fed. The new nest was found a short distance away, thirty-five feet up in a live oak, and smaller than the average in size. It was lined with dry stubble, a small quantity of Spanish moss and a few feathers from the parent bird. Four eggs constituted the set, three being one-half advanced in incubation while the fourth was infertile. The eggs were quite

round in shape. Both birds remained perched on a white oak a short distance away, and showed little concern.

This year I did not visit these birds until March 29, when a short search brought one and then both birds to view. They flew about uneasily, uttering their plaintive whistle, while I looked for the nest. Presently it was found in the extreme top of a slender oak, thirty-five feet from the ground, and contained four eggs which were fresh. The nest was 18 inches in diameter and lined with long, dry grass. Two of the eggs of this set are of the bright coloration. The eggs of this pair of Kites are considerably rounder than any others I have taken. The set is now in the collection of the U. S. National Museum.

During the early spring of the present year my collecting trips took me through the hills to a great degree and here I found a pair of Kites located in a most picturesque spot. On February 23, the birds were observed in a cañon, giving chase to a Western Red-tailed Hawk, which had evidently trespassed upon their territory, after which they slowly flew back and perched on a fence on the hillside. On March 8, the nest was found containing two eggs. Both birds were near but showed little anxiety when I climbed to the nest. On March 14, I again visited the nest, this time during a shower, and both birds were very quiet. The male was doing look-out duty on a favorite post of a fence bordering the cañon, while the female was on the nest. She left when I began to climb the tree and joined her mate. The nest held four eggs, which are quite round in shape, and two of them are of the handsome reddish coloration. The nest was fifteen inches across and six inches thick, with quite a depression in the center, as was necessary, for the nest was 50 feet from the ground in the top-most branch and subject to high winds which swept up the cañon. The birds flew high overhead, uttering their plaintive whistle but making no attack. The nest was beautifully situated, being in the top of a high oak which was covered with streamers of Spanish moss, and the view down the cañon was unusually picturesque.

The birds were observed at different points for three weeks when they finally began a new nest in a small scraggly oak near the head of the cañon. When not at work on the nest both birds would sit for long intervals on a dead tree near by, without mak-

ing a sound. On April 12, the nest held its first egg, and both birds were near by. A week later when I visited the cañon, neither of the Kites could be found, and the nest contained naught but a few fragments of shell. The destruction of the eggs was probably accomplished by a ground squirrel, after which the birds deserted the locality.

REPORT OF THE A. O. U. COMMITTEE ON PROTECTION OF NORTH AMERICAN BIRDS.

YOUR Committee feel that the work done for the protection of birds during the year 1896 has been amply rewarded, and that the results obtained in the various channels of labor have been commensurate with the efforts made. The brief outline of results given below will, we think, be of interest to the members of the Union, and will also be an incentive to an increased activity on the part of the various bodies and individuals who are interested in this most important and necessary work.

MASSACHUSETTS.

Mr. Geo. H. Mackay, of the Committee, reports as follows :

"I have to report for the district coming under my jurisdiction that there is substantial evidence to prove that the enforcement of all protective laws has been a good and wise investment. Two visits to Muskeget Island during the summer gave evidence of the beneficial results of protection, for it is doubtful if in the history of the Massachusetts Terns they have ever been so abundant as during 1896. They have enjoyed a season of unmolested quiet ; no eggs have been taken, and only eight birds were shot. The results to be appreciated should be seen. I regret to be compelled to add that the unsettled conditions between the town of Nantucket and the owners of Muskeget, referred to in 1895, still exist, making the work of protection a peculiarly difficult one. The majority of the Selectmen of the town do not oppose

the protection of the Terns. The work in its detail takes both time and effort, and I am convinced that a relaxation of vigilance would be to the decided disadvantage of the birds. The United States Government during the past summer has erected a Life Saving Station on Muskeget Island, the crew employed being on duty except during the months of June and July, when the captain remains there alone. As these two months are the breeding season of the Terns which annually return there, I hope, in the future, to be able to arrange with the Selectmen of Nantucket or the Captain of the Station, or both, to continue the protection of the colony.

"In June I visited Penikese Island, Mass., and made an examination of the large colony of Wilson's and Roseate Terns domiciled there, estimated to number some six or seven thousand birds. They have been subjected to numerous hardships, having been annually robbed of their eggs up to the 10th of June, after which date they were left more or less undisturbed. This colony of Terns appeals to the best efforts of all who are interested in preserving bird life, especially residents of Massachusetts. I have reason to believe that before the commencement of the next breeding season the owners of the island may be induced to co-operate with others in extending to these Terns the fullest protection, and it is desirable that those interested in such a result will use their influence in bringing about such an end.

"Early in the present year I appeared several times before the Fish and Game Committee at the State House in Boston, urging a new law which I had assisted in formulating, advocating a closer season for some of our Game Birds, and also for the protection of some of our Hawks and Owls. Had any legislation been obtained I believe the statute advocated would have been recommended by the Committee. It is very probable that I may again offer the same bill during the coming season."

GREAT GULL ISLAND, N. Y.

Protection was given the colony of Terns on Great Gull Island, N. Y., during the past season by Capt. Henry P. Field, the State Game Protector, whose salary was paid by the Linnaean Society, the American Society for the Prevention of Cruelty to Animals,

and the West Side Natural History Society, all of New York City. Capt. Field reported that the Terns arrived at the island May 11, about four days earlier than usual, that there were large numbers of them, and that it was pretty generally known by the public that they were protected.

This island, being the property of the General Government, and Capt. Field having full charge of it, as well as being the State Game Protector, his authority is recognized and respected.

At the close of the season Capt. Field reported that the Terns left the island September 27,—one day earlier than in 1895. A great many were hatched during the past season, as the colony was not disturbed at all. It is a hard matter to estimate their numbers, but they are very plentiful. I should think that there were about 7000 pairs in the colony.

That the colony has grown very largely is evidenced from the fact that an overflow colony of some hundreds of birds has established itself on the north end of an adjacent island (Gardiners Island). The keeper of Montauk Point Light informs me that the Terns were more numerous about the point during the past summer than for many years. It is proposed by your Committee to continue the protection of this colony until, if possible, the south side of Long Island is again populated with these beautiful birds, as it was before they were practically exterminated in 1886 by the demands of fashion.

NEW JERSEY.

Mr. Stone, of the Committee, reports of the New Jersey coast:

"I have visited, or have reliable reports from, various points from Point Pleasant to Cape May. I have no record whatever of any *Sterna antillarum*. *S. hirundo* continues in about the same numbers as for several years past. There were about ten pairs breeding between Atlantic City and Brigantine, all back on the salt marshes, and they are reported more plentiful near Avalon. *Larus atricilla* I found breeding on the marshes northwest of Brigantine beach, the colony including about 40 pairs.

"Another colony is reported from near Sea Isle City. I am sorry to state that fishermen were systematically robbing the nests at Brigantine; the colony, however, is out of reach of the ordinary

summer visitors, as the water is so shallow that but few yachts ever go up so far. The Clapper Rails were very plentiful, and but little egging was done. Unfortunately, however, there were two very high tides in September which completely flooded the marshes and compelled the birds to swim, when they became easy marks for the pot hunters. It is estimated that 10,000 birds were killed in two days at Atlantic City alone. The market was glutted, and large numbers of the dead Rails went to waste. If a limit to the number shot by one man could be fixed by law it would have an excellent effect.

"The Pennsylvania Audubon Society has only just been organized, and is not yet in working order. Its plan of work will be much the same as the Massachusetts Society, after which it is modeled. Many of the most prominent citizens of Philadelphia have given it their support as honorary Vice-Presidents, and we hope to do some good work.

"During the year I have delivered a number of lectures in Philadelphia and vicinity before schools, societies, etc., on ornithology, and worked with good success to interest persons in the study and protection of birds; the former generally follows the latter, and I think the diffusion of ornithological information in this way a very important matter. Mrs. Olive Thorne Miller's course of lectures in the city last spring was productive of good results.

"Finally, I would report that the Delaware Valley Ornithological Club has a Committee on Protection of Birds, which is prepared to deal with any questions which may be brought to its notice."

ILLINOIS.

Mr. Ruthven Deane, of the Committee, reports as follows:

"In regard to the present use of birds for millinery purposes, I have made considerable investigation, having been introduced to a number of our largest and best-posted firms in that business. The result of my inquiries is that while feathers and plumes are extensively used in the trimming of hats, few, if any, native birds, aside from the Egret, are now used.

"The majority of the feathers are from pigeons and chickens, and are dyed. I cannot find, as reported by Miss Merriam, that any artificial heads and beaks are made of celluloid.

"The rage for the Egret plumes is greater than ever, and in the past sixty days the price has advanced over one hundred per cent. At present the fashion is principally to use the stub half of the plume, although the tips and finer ends are also used, but to a less extent, naturally being considerably higher in price.

"Our city taxidermists advise me that they have had little or no order work for millinery purposes in the past year, and such as they have had has not been for insectivorous birds, and that they do not employ boys to shoot specimens, as was once their custom.

"The proprietor of one of our large wholesale millinery stores informed me that a feather and plume dealer with whom he used to do business had ceased fitting out any further expeditions, he having lost heavily on former ventures.

"About the only heads of birds that have been in use in the past year have been those of some foreign Blackbirds and Sparrows, which have been principally imported from France. The quills of one or two species of Pheasants, probably from China, are also more or less in fashion. The birds are imported in the skins, so as to save the duty on manufactured goods, and the tail, composed of eighteen feathers, commands quite a large price.

"Really the only destruction that is now going on among our native birds is evidently among the Herons and Egrets, and, while this has been on the increase for the present fashion of this spring (1896), the general opinion is that it will die out, not to return to the extent that has heretofore prevailed.

"I have recently been using my influence upon a number of ignorant country boys, who have annually made a great depredation among the Herons in what is known as 'Crane Heaven,' on the Kankakee River, in Indiana, and, while my influence was only on a moral basis, several promised to desist from any wanton destruction this year. Two gunners would visit the heronry once or twice during the summer and slaughter from sixty to eighty Great Blue Herons in a day, leaving them where they fell on the ground.

"The Game Laws of Illinois last year were more carefully enforced than for many years, and a great many arrests were made among idle boys who were shooting small species, such as Robins, Woodpeckers, etc. I think the same watchfulness will be continued this year."

In a later communication Mr. Deane writes as follows :

"Fashion in feather ornamentation has not materially changed since I wrote you in detail in the spring. We occasionally see the heads or wings of some of our native species worn in their natural color, yet the tame Pigeon and Egret head the list in this section of the country.

"I wrote you before that I had endeavored to use influence in the protection of Herons in a certain 'Crane Heaven' on the Kankakee River in Indiana. During two trips in the past two weeks in that region I find, quite to my satisfaction, that no raids were made on the heronry last spring and summer, as had yearly been the custom of the native boys and, I am sorry to say, some so-called sportsmen. My appeal may have done some good, but the fact that a bad fire played havoc in the woods near the heronry, made the approach much more difficult. The location where the Night Herons bred, a long stretch of low 'pucker brush' bordering the marsh, was wiped out by fire, but the birds evidently found another favorable site, for they are much more abundant now than I have seen them in years.

"I have been living this summer at Highland Park, a small town twenty-five miles up the Lake shore. The authorities have taken strict action against the killing of insectivorous and song birds, and have posted that section of the law on the trees and public buildings of the town. The unusual abundance of many of the summer resident birds is no doubt the result of the enforcement of the law."

CALIFORNIA.

Mr. Leverett M. Loomis reports for California as follows : —

"Several days ago I sent you a 'separate,' giving some account of the havoc that is being made by the light keepers among the sea birds on South Farallon Island — the sale of eggs to collectors

threatening the extermination of the Petrels, and the market trade the extermination of the Murres and Gulls.

"I write now seeking the aid of the A. O. U. in putting an end to this nefarious traffic. Two steps are needful:

"1. A California law must be secured prohibiting the sale of wild birds' eggs. This will stop the shipping of eggs to the markets.

"2. An order must be obtained from the U. S. Lighthouse Board instructing the Farallon keepers to stop gathering eggs, and to keep off possible poachers that might want eggs for their own consumption.

"A committee from the California Academy of Sciences can attend to the California law. I shall present the matter in a lecture I am to deliver on the Farallons, October 19, before the Academy.

"It remains for the A. O. U. to secure the action of the Lighthouse Board.

"All this can be accomplished this fall, and another season the birds will be allowed to breed, and the rookeries will be preserved. Kindly send me copies of the New York and Massachusetts laws relating to bird protection, especially of sea birds."

(A popular article, confirming Mr. Loomis's statement regarding the wanton destruction of eggs on the Farallons, appeared in 'Leslie's Popular Monthly,' New York, November, 1896, pp. 589-597 — ten illustrations.)

In response to Mr. Loomis's appeal for aid, your Chairman at once wrote to the Lighthouse Board as follows:—

NEW YORK, Oct. 3, 1896.

THE HON. SECRETARY LIGHTHOUSE BOARD,
Washington, D. C.

DEAR SIR:—

As Chairman of the American Ornithologists' Union Committee on the protection of North American Birds, I deem it my duty to call to your attention an abuse that you have power to abate, *i. e.*, the destruction of the eggs of certain sea birds that breed on South Farallon Island.

I send you herewith a copy of a letter received from Prof. Loomis, of the California Academy of Sciences, together with a copy of a paper written by him on California birds in which, on pp. 356-358, he calls attention to the abuse.

I assume that the island in question belongs to the Government, and as the lightkeeper is a public servant in the employ of the Government, drawing a salary for a specific purpose, he has no right to engage in any commercial pursuit, especially when it is so harmful in its effects.

This destructive work can be easily stopped if the Lighthouse Board will issue an order to the keeper of the South Farallon Light prohibiting him from engaging in egging, and also authorizing him to prevent all other persons from egging on the Government property.

I feel assured that your Board are in sympathy with this work, from the fact that some four years since, by authority of the Lighthouse Board, Capt. Henry P. Field, of the Little Gull Island Light, N. Y., was allowed to be appointed as Special Game Protector under the New York State laws for the purpose of protecting the colony of Common Terns (*Sterna hirundo*) and Roseate Terns (*Sterna dougalli*) on Great Gull Island.

The protection afforded this colony of Terns has increased it more than four-fold and necessitates no action on the part of the Lighthouse Keeper except to inform eggers that the birds are protected.

I trust that your honorable Board will see fit to issue the order asked for, and I shall be pleased to have a communication from you to that effect so that I may so report to Prof. Loomis and to our Society.

An immediate reply was received, as follows :

Treasury Department,

Office of the Lighthouse Board.

WASHINGTON, 7 October, 1896.

Mr. WILLIAM DUTCHER,

Chairman of the American Ornithologists' Union Committee,

No. 525 Manhattan Avenue, New York, N. Y.

SIR :—

Your letter of 3d of October, 1896, relative to the sale of wild birds' eggs, by employes of the Lighthouse Establishment, on South Farallon Island, Cal., has been received.

In reply, the Board has to state that your letter, together with its enclosures, was referred this date to the district officers of the 12th Lighthouse District for enquiry, and for a joint report to the Board upon the subject.

The co-operation of the Biological Survey of the Department of Agriculture has been promised in case the appeal to the Lighthouse Board is not successful.

LOWER CALIFORNIA.

Mr. A. W. Anthony, of San Diego, Cal., appealed early in the year to the Committee, through Mr. Stone, for aid to prevent the

extermination of the Herons of Lower California. The following extracts are from letters from Mr. Anthony to Mr. Stone, dated April 5 and May 3, 1896.

"I see by the January 'Auk' that you are a member of the new Committee on Protection of North American Birds. The subject is one in which I have been, and still am, very much interested; of late, however, I have about given up ever seeing anything done for the few Herons that are left. The fact that a new Committee has been appointed would seem to indicate that something was to be done, but *what!* Has any plan been proposed?

"I have for several years thought of all sorts of impossible plans for protection, but could never hit upon anything that I thought would do any good. If we could get one or two journals like 'Harper's Bazar' to cry down the custom of wearing birds, advising something in their place, the fight would be short. I think that about half the women who wear Heron plumes honestly believe they are not feathers; and then, also, education is needed. I often, when I scold at such head-wear, am somewhat taken down by: 'The idea! that 'aigrette' never saw a bird. They are simply manufactured feathers,' etc.

"The slaughter has begun here on this coast in all its glory. Eastern firms are sending out great inducements to anyone they think will hunt or buy for them. Papers like the San Francisco 'Call,' etc., in their Sunday editions, print accounts several columns in length of how someone made some fabulous sum in a few weeks shooting Herons for their plumes 'which are worth several times their weight in gold,' etc., and every such article does vast harm.

"As a result, all the Indians on the Colorado River below Yuma, and many white men also, are hard at work killing off the birds that nest in considerable numbers on the islands in the delta and along the extensive lagoons of that region. This year they have got into Magdalena Bay, where countless thousands have heretofore nested in safety, but at the rate they are now being killed they cannot last long.

"I have carefully avoided publishing anything regarding the very extensive nesting colonies of Terns, Herons, etc., of Lower

California, fearing that it would result in their being set upon by plume hunters, but I think I have had my trouble for nothing. There was a good deal of talk last spring of outfitting one or more large schooners here and taking a lot of hunters to the Mexican coast below San Blas, where lagoons extend for a hundred miles or more along the beach and vast rookeries are known to exist, but other business came up at that time and the schooners did not go; however, they will go as soon as times get dull again.

"I think it is in the power of the Secretary of the Interior, or of Customs, to put a stop to all such work in twenty-four hours. There would be little use, I think, in trying to do anything with them in a political way, but if the right parties were approached personally, *i. e.*, not in their official capacity, it might work, and, if so, would do a great deal toward helping us in the United States. I shall be interested in hearing what your Committee is doing.

"I think a good plan would be for a Committee of some scientific society to prepare a letter, setting forth in strong language the damage done to our Herons in Florida, and the fact of these same plume hunters being now engaged in similar work in Mexico. I think it is now unlawful to take plumes in Florida. If so, that would have its good effect, as they like to follow our lead. You cannot make it too strong, and by appealing to them in person,—the Governors of two or three States,—you would make a strong friend of each. If one could be made to stop the work in his State, I think by a very little work the rest would be induced to follow, and so stop it all over Mexico. Such letter should be endorsed by as many scientific societies as possible, which would make it very impressive. . . .

"We have a very good class of farmers in Southern California, at least; they object strongly to having Hawks and Owls shot, and give them all the protection one could ask.

"Cold storage doesn't cut any figure in this State,—all game must be disposed of at once and possession, even in cold storage, is the same as killing in the close season, even if shipped from Mexico.

"I think the egg traffic should be stopped, however, at San Francisco, especially as it does a great deal of damage to the sea fowl.

"If I can be of use at any time I shall be glad to furnish any aid possible."

Following the suggestion of Mr. Anthony, strong letters to the proper authorities, urging the protection of all Herons, were sent through Mr. Stone, and by Prof. J. A. Allen in behalf of the Linnæan Society of New York, to whose attention the matter was brought. No report of the direct results obtained has been received as yet.

AUDUBON SOCIETIES.

Very valuable work is being done, and will be done in the future, by the Audubon Societies which have been established, or are now in process of organization. The first of these, the Massachusetts Audubon Society, was organized in 1886. As each one is planned on the same lines, and with the same objects in view, a quotation from the prospectus of the Massachusetts Society will serve to give the character of the work hoped to be accomplished.

"The purpose of the Society is to discourage buying and wearing for ornamental purposes the feathers of any wild bird, and to otherwise further the protection of our native birds. We would awaken the community to the fact that this fashion of wearing feathers means the cruel slaughter of myriads of birds, and that some of our finest birds are already decimated, and may ultimately be exterminated by the demand for their feathers. We would make an appeal to all lovers of nature, since by this reckless demand of fashion the woods and fields are being stripped of one of their chief attractions, and the country deprived of indispensable friends to agriculture."

Any person is eligible for membership who is willing to subscribe to the following simple pledge: "Being in sympathy with the principles of the Massachusetts Audubon Society, I hereby agree not to purchase or encourage the use of feathers of wild birds for ornamentation." A very small fee is required of members, the same being used solely for the purpose of printing and disseminating the necessary literature of the subject. Societies similar to the above are now actively working in Philadelphia and Chicago, and I am pleased to state that one is in

process of formation in New York. As a striking sign of the influence of the Massachusetts Society, it may be stated that one of the fashionable milliners of Boston is a member of the Society and, consequently, will not sell the plumage of wild birds to her customers.

A large and influential Society, having for its object the protection of birds has existed for some years in England, the President being the Duchess of Portland, and the Secretary, Mrs. F. E. Lemon, Hillcrest, Redhill, England. The literature issued by the English Society has been sent to your Committee, and is found to be very complete. A large part of it, with some modification, could be adopted by the American Societies to advantage.

At a recent International Congress for the Prevention of Cruelty to Animals it was decided to found, in the various countries represented at the Congress, children's societies for the protection of those birds which are now killed in such vast numbers for the sake of adorning with their plumage feminine hats and dresses.

While legislation may be of vast benefit in protecting all bird life, yet we firmly believe that the true solution of the problem will be the education of the children of our schools, both public and private. They should be taught in every grade, from the kindergarten to the college, not only the æsthetic but the economical value of our birds. To this end the Division of the Biological Survey, United States Department of Agriculture, has issued a very valuable paper (Circular No. 17) which should be in the hands of every teacher and educator on this continent, with an urgent appeal that the suggestions in the circular be carried out to the fullest extent. When we have educated our children laws will be unnecessary.

In conclusion, your Committee asks to be continued with the power to add to its numbers from the members of the Society, and suggests that each one of the 600 members of the Union shall take an active interest in this work during the coming year, especially in distributing 'Circular No. 17,' and in the formation of local societies in the localities in which they may reside.

Respectfully submitted :

WILLIAM DUTCHER,
Chairman.

EVIDENCE SUGGESTIVE OF THE OCCURRENCE OF
'INDIVIDUAL DICHROMATISM' IN
MEGASCOPS ASIO.

BY ARTHUR P. CHADBOURNE, M. D.

*Plate I.**(Concluded from Vol. XIII, p. 325.)*

As to the cause of the altered color :— The exclusive diet of liver seems to be the only unusual feature in the conditions under which my two Owls lived, compared with other birds of prey in captivity ; or at least, it is the most noticeable one. We have already seen that the change in the female was first apparent after this food had been alone used for about three weeks, and also that the smaller Owl a little later showed signs of a similar change ; while almost an equal length of time after the liver had been discontinued, there seemed to be a gradual loss of the red tint. Was this chance, or is it a hint, as to the cause of the red brown color ? The liver is well-known to contain an extremely large amount of coloring matter, and to play an important part in the production of the majority of the different pigments of the organism, either directly or indirectly. Moreover, it is a fact that the color of the plumage can be altered by certain kinds of food — thus, some breeds of the Canary (the 'Yellow Norwich' among others), change from a pure yellow to a bright orange, if red pepper is daily mixed with their food ; and this too without any feather loss, as I have myself seen. Who can tell the effect of a continued diet of liver, until he has tried the experiment — on an Owl ?

The way in which the colors of feathers are produced can only be briefly mentioned here, but a few words on the subject may not be out of place. In general, feather-color is due (1) to pigmented matter of one, or of several colors ; (2) to the physical effect of the structure of the part on the light rays ; or (3) to both of the above combined. Pigment absorbs all kinds of light except that on which its color depends, thus in a brown feather the only unabsorbed light rays are those which produce the sensation of brown, and these alone reach the eye. Black results from the complete absorption, or deflection of all light rays ; while if none

of the spectral colors fail to reach the eye, the combination produces white. In addition, an almost endless variety of colors, shades and tints are caused by mixtures of different 'pigments,' much in the way we use different paints. The action of the structure and form of the colored parts is, on the other hand, purely physical; for example, the lateral branches, forming the vane, may have their surfaces so shaped, as to produce the effect of a multitude of small prisms, by which the different colored rays are made to diverge, only those of a certain color reaching the eye; perhaps, as believed by Gadow, slight movements bring different kinds of rays successively to the eye, and iridescence is the result.

Color-change in the individual feather,—or, in a broader sense, in the plumage as a whole, without adequate new feather-growth (*i. e.*, without a so-called 'moult'),¹ seems to have received little or no attention from ornithologists in this country during the past quarter of a century or more.² Yet about 1850, when the theory of "color-change without moult" was revived by Schlegel and Martin independently, German ornithological literature teemed with articles on this subject; and it had been proved even prior to this that the plumage might be completely altered in color without feather-loss or new feather-growth. And such color-change also seems to be normal, and probably recurs at regular intervals in certain individuals and conditions among various species. It has been shown in connection with the subject of the 'Spring Plumage of the Bobolink,'³ that feather-change and color-change are two distinct processes; but the point which concerns us at present is that *a change in the color of the feather, or even of the whole plumage, not only may, but has been proved to occur normally without increase of feather-loss.*

The color of my Owls was evidently due to pigmented matter, and was practically independent of the physical action of the structure of the part on the light rays. Morphologically, one

¹ The 'aptosochromatism' of Coues (*Cf.* Auk).

² The above was written in 1894, before the recent articles of Allen, Chapman, Stone and others had appeared.

³ 'The Spring Plumage of the Bobolink.' Auk, Vol. XIV, pp. —. [The publication of this paper is necessarily deferred till the April number.—EDD.]

black, and at least two varieties of brownish coloring matter (so-called 'pigments'), were present, not only after the red-brown shade appeared in the plumage, but also in every feather of the gray type, except three of the 'first' and one from the mature gray plumage.

The *black pigmented matter* was made up of oblong-oval or elliptical granules, never of small rods, as in the domestic pigeon: but it is well-known that the shape varies in different kinds of birds. The amount of black granular matter was always relatively small, and it was chiefly confined to the deeper cell layers. Isolated spots of true black were frequent in the central cells, while around them there was often much dark brown.

The *brown pigmented material* was found in the form of a pale, nongranular, diffused stain, extending through all kinds of feather tissue; and also as brown granules, of various tints and sizes, which were usually in narrow lines or groups, instead of being generally distributed, like the nongranular stain. The two extremes were connected by a complete series of intermediate forms, showing every gradation between the dark chocolate and the ochraceous tint; while the size of the granules also varied considerably, and it was at times not easy to distinguish the homogeneous from the very finely granular. The black and very dark brown granules perhaps also intergrade, but on this point I can not speak with certainty.

As the red phase developed, more and more red-brown granules and diffuse stain *seemed* to be present in the feathers, at times obscuring, or completely hiding the dark markings beneath (Plate I, fig. 1), or grouped and scattered about the black in the deeper layers, caused various shades and tints of brown and tawny. As a rule the seemingly black color proved to be the result of either a dense mass of dark brown granules, of the greater thickness of the darker portion of the specimen, or of both continued, plus an underlying area of true black in the deep tissues. The pure rufous and bright tawny portions had the coloring matter chiefly in the more superficial cell layers, and either little or no true black beneath: while the streaks and lines of brownish granules suggested the 'bast-fibre layer' of certain plants, and the tawny effect was heightened by the diffuse nongranular stain (Plate I, fig. 4, *b*

and c, fig. 5, and cut in text). In the white parts of the vane, the only color was a pale straw-yellow almost entirely limited to the outer (peripheral) cellular tissue, and probably caused by the



Two Barbs from near A., pl. I, fig. 1. Groups of dark colored cells are seen in some parts of the barbs. (Zeiss 16mm. apochromat. and No. 6 comp. oc.)

homogeneous stain (Plate I, fig. 1). The downy parts of the contour feathers had nodular enlargements at regular intervals, in which the coloring matter was usually collected (Plate I, fig. 4, d); in other specimens the nodes were almost colorless, and the internodes pigmented (Plate I, fig. 4, a). There seems to have been an absolute loss of black, as well as of the darkest brown granules

during the progress of the change to the reddish phase, for markings were absent, not merely hidden by overlying color, which had been distinct in corresponding specimens of the gray phase.

Feathers from twenty-five specimens of *Megascops asio*¹ in the writer's collection, in all stages of plumage, were indistinguishable from those of the dichromatic female in corresponding dress, both the black and also the various shades of brownish pigmented matter being present in the large majority of specimens examined; but differing in relative amount and distribution.

¹ The material examined was as follows :

CAST-OFF FEATHERS FROM MY TWO OWLS.

First plumage	15 feathers.
Typical gray phase	9 "
Intermediate	56 "
During most marked stage of red-brown	10 "
Specimens from female after death of male	3 "
From skin of female	<u>127</u> "
Total	220 "

CAST-OFF FEATHERS FROM SKINS OF M. ASIO.

2 specimens	first plumage, typical gray	91 feathers
1 "	" " " red	17 "
7 "	adult " " gray	114 "
9 "	" " intermediate	102 "
4 "	" " typical red	59 "

23 specimens 383 feathers

	Typical gray.	Intermediate.	Typical red.	Total.
Red-brown pig- m'ntd matter present	206=(95%)	148=(100%)	226=(100%)	580=(98%)
Red-brown ab- sent	13=(5%)	0=(9%)	0=(0%)	13=(2%)
Total feathers examined.	219=(36+%)	148=(25%)	226=(38%)	593

In short, so far as shown by the present material and methods of examination, the dichromatism of *Megascops asio*, both in the species and also in the individual, is a quantitative difference in the distribution and relative amounts of the same morphological varieties of pigmented matter; and there is probably also an absolute, as well as a relative difference in the amount of coloring material in the various phases.

Of the chemical and other relations between the pigmented matter, I shall say but little now. The usual qualitative tests and also the methods used by Krukenberg show that 'zoöruhin' (Krukenberg), and 'zoömelanin' were present in almost all the feathers. No other coloring matter was detected chemically; but differential staining brought out marked differences in the affinity of the various brown granules for certain dyes, and also in the color-reactions of the black and brown granules. The microspectroscope gave spectra agreeing with Krukenberg's outlines for 'zoöruhin.'

That the pigmented matter represents successive steps in a process of retrograde or destructive metamorphosis, seems not unlikely. The subject offers an attractive field for speculation, but one upon which we will not enter at present.

In conclusion, my two pets have, I think, fully proved (1) that a change from the gray to the red phase of plumage did, in this case, actually take place in the same Screech Owl (*M. asio*); (2) that the change in question was not accompanied by increased feather-loss or new feather-growth (i. e., no 'moulting' occurred); (3) that, so far as known the double phase was in no way due to age, sex or season; (4) and that almost beyond question it was an instance of true 'individual dichromatism.'

EXPLANATION OF PLATE.

Figure 1. Feather from skin of 'dichromatic' female *Megascops asio* (coll. A. P. C. No. 4396), showing the colors and parts illustrated in the following figures. Slightly enlarged. Drawn and colored from nature by W. H. Kaula.

Figure 2. Barb from white portion of feather near B fig. 1. (Zeiss 4mm. apochromat. obj. and No. 4 comp. ocular. Mounted dry.)

Figure 3. Transverse section through barb from near D fig. 1. Shows distribution of pigmented matter in the deep and superficial cells. (Zeiss apochromat. obj. and No. 4 comp. oc.—Celloidin and balsam.)

Figure 4. Variations in the barbules of the same feather.

A, from near fig. 1 E. — Pigmented matter chiefly in internodes.

B, from near fig. 1 F. — No true black coloring matter present.

C, from near fig. 1 G. — Shows 'bast-fibre' arrangement of brown granules.

D, from near fig. 1 H. — Pigmented material almost lacking in internodes. (Zeiss 4mm. apochromat. obj. and comp. ocular No. 4. — Feather mounted dry.)

Fig. 5. A barbule much like that shown in C fig. 3, but more magnified. (Zeiss 4mm. apochromat obj. and No. 6 comp. ocular. Mounted dry.)

ZAMELODIA AGAINST HABIA.

BY DR. ELLIOTT COUES.

IN creating the new generic name *Zamelodia* I said (Bull. Nutt. Orn. Club, V, 1880, p. 98): "The genus *Hedymeles*, Cab., 1851, was based upon this species [*i. e.*, *Goniaphea ludoviciana*], but cannot be used for it because of *Hedymela*, Sundev. (Öfv. Vet Akad. 1846, 223) for another genus of birds, the difference being merely dialectic. Cabanis seems to have proposed it simply because 'Habia Reich. 1850' was not classically correct. But *Habia* or *Abia* is said to be antedated by *Habia*, Lesson, 1831, and therefore untenable."

In an article entitled '*Habia* against *Zamelodia*,' Dr. L. Stejneger said (Auk, Oct. 1884, p. 366): "It is Agassiz (Nomcl. Zool., Aves, p. 34 (1843)) who first quotes '*Habia Less. Tr. d' Ornith.* 1831,' — afterwards (Index Univers., p. 1 (1846)) 'correcting' it into *Abia*; but an inspection of Lesson's '*Traité*,' etc., will show that *Habia*, as used by him, is only the French vernacular name applied to the birds of the genus *Saltator* Vieill., and Agassiz might just as well have cited '*Habia Vieill., Analyse*, 1816,' for that is the place where Vieillot himself applies the name as the vernacular equivalent of the systematic name *Saltator* proposed simultaneously."

My duly appreciated critic then proceeded to prove "that *Habia* was not used by Lesson or Vieillot as a systematic generic

term." But in drawing the hasty inference from that fact, that "Reichenbach was, therefore, fully justified in applying it [*i. e.*, the name *Habia*] as he did, viz., as the name of the genus having the Black-headed Grosbeak for type," my commentator proved nothing but the fact that his knowledge of the case was deficient. Dr. Stejneger evidently thought he had put *Zamelodia* to sleep forever; but nothing is easier than to show his whole contention to be wrong. Meanwhile, *Habia* has displaced *Zamelodia* unjustly, in the A. O. U. Lists of 1886 and 1895, and very generally among American writers since 1884.

The Baron Georges Léopold Chrétien Frédéric Dagobert Cuvier's 'Règne Animal' was published in 1817, and in other years. In an edition of the 'Animal Kingdom' which was published in London in 1849, the ornithology of which was edited by Edward Blyth, *Habia* appears on p. 711 in the "Index of scientific names," as distinguished from the "Index of popular names"; and on p. 184 can be read in plain English as follows:—

"THE FINCH-TANAGERS (*Habia* Vieillot)—

"Have a thick, bulging, conical bill, as broad as high, the upper mandible of which is rounded above.

"Such are *Tan. flammiceps*, Pr. Max., *T. superciliosa*, *psittacina*, and *atricollis*, Spix, etc."

Now it is true, as Dr. Stejneger contended, and as nobody ever denied, that all the vernacular names in certain works of Vieillot and of Lesson are printed in a type which distinguishes them from the Latin names. Nobody doubts that 'Habia,' as used by Vieillot and Lesson, was intended as a French word (after the Spanish-American '*Habia*' of Azara), and as a vernacular equivalent of the genus-name *Saltator*; perhaps Cuvier himself so intended it in 1829. But what has that to do with Cuvier's (or his editor's later use of the name *Habia* as a systematic generic term for *Saltator* or anything else? Nothing. All the vernacular names in the English version of 1849 are typographically distinguished; and in the present case the author (or editor) incontestably adopts Vieillot's vernacular word *Habia* as the Latin name of a genus which includes certain South American Tana-

gers now referred to *Saltator* or elsewhere. *Habia* may or may not be tenable for some such birds; but obviously it cannot stand for any others; and consequently, on the principle that "once a synonym always a synonym," or by our rule for the rejection of homonyms, *Habia* Reich. 1850 falls to the ground, dragging with it the *dissecta membra* of Dr. Stejneger's worsted case.

According to the admirably lucid manner in which Dr. Stejneger's 'Analecta Ornithologica' were wont to be formulated, even when their author was mistaken, the present case may be thus stated:—

Genus *Zamelodia* COUES.

1850.—*Habia* REICH., Av. Syst. Nat. pl. lxxviii, fig. 14, June 1, 1850; type *Guiraca melanocephala* Sw.; *nec apud* CUVIER, 1849; *nec* AGASSIZ, 1843; *nec Abia* AGASSIZ, 1846. (*Nec Abia* LEACH, GIEBEL, in entomology).

1851.—*Hedymeles* CAB., Mus. Hein. i, June, 1851, p. 152; type *Loxia ludoviciana* LINN.; *nec Hedymela* SUND., 1846.

1880.—*Zamelodia* COUES, Bull. Nutt. Orn. Club, V. Apr. 1880, p. 98; type *Loxia ludoviciana* LINN.

1884.—*Habia* STEJNEGER, Auk, Oct. 1884, p. 367, *errore*.

1886–95.—*Habia*, A. O. U. Lists, 1886–95, *errore*, and of misled American writers generally since 1884.

I gladly avail myself further of the incomparable Stejnegerian method of exposition to state that the species, according to Coues's Key, 2d–4th eds. 1884–90, p. 389, will stand—not as Dr. Stejneger, *l. c.*, says they will stand—but as:

244. *Zamelodia ludoviciana* (LINN.). ROSE-BREADED GROSBK.

245. *Zamelodia melanocephala* (SWAINS.). BLACK-HEADED GROSBK.

Dr. Stejneger's acquirements in Greek etymology seem to have failed him in discussing the meaning of *Abia*, as the Agassizian emendation of *Habia*, in 1846. The learned gentleman says that *Abia* would seem to be derived from ἄβιος, in the meaning of 'poor, without food.' He may be glad to be informed that *Abia* is directly from the Greek ἀ privitive and βία, force, power, might, bodily strength, being first introduced in zoölogy by Dr. W. E.

Leach for a genus of hymenopterous insects of the family Tenthredinidæ, and subsequently (1856) used by Dr. Giebel for a genus of neuropterous insects. While I am pleased to be able to compliment him upon the discovery that this entomological word "has no connection with the original *habia*," he is mistaken in saying that *Abia* and *Habia* are not the same word in ornithology; for *Abia* is simply a variant of *Habia*, introduced by Agassiz upon a mistaken notion of the etymology and correct form of Azara's name *habia*. If Dr. Stejneger will look in the Index of Gray's 'Handlist', he will find both forms in ornithology. The literal identity of *Abia* Leach and *Abia* Agassiz is simply fortuitous; the former is of Greek origin; the latter is not. I stated the matter correctly, some years ago, in the 'Century Dictionary': see under the words *Abia*, *Habia*, and *Zamelodia*.

PRELIMINARY DESCRIPTIONS OF NEW BIRDS FROM
MEXICO AND GUATEMALA IN THE COLLEC-
TION OF THE UNITED STATES DEPART-
MENT OF AGRICULTURE.

BY E. W. NELSON.

THE present paper is based upon specimens of Mexican and Guatemalan birds obtained mainly by myself and my assistant, Mr. E. A. Goldman, during explorations conducted for the Biological Survey of the U. S. Department of Agriculture during the last five years. In addition to this collection, numbering between four and five thousand specimens, I have had free access to the National Museum series of Tropical American birds for purposes of comparison. In the course of our work we have traversed Mexico from one end to the other, and have crossed the country six times from sea to sea. Specimens were obtained in many districts never before visited by an ornithologist, and although the collections were not exhaustive in any given place, yet the aggregate of series from numerous localities scattered over a large part of the country has afforded a great amount of interesting material.

Mexico covers a wide range of topographic and climatic conditions, from tropical coasts to snowy summits of gigantic volcanoes. The coast lowlands are humid in some parts and very arid in others. Above these rise mountain slopes that are bathed in rain and mist during much of the year; and still beyond are the arid desert table-lands of the interior. As might be supposed, these differences in climate and other physical features result in various well defined life zones and give great variety to the animal and vegetable life. My knowledge of these climatic and topographic features has been of the greatest service in enabling me to define with some accuracy the geographical races herein described. In no instance is a bird described as new unless the differences from its nearest relative are associated with definite changes in the physical surroundings. A detailed study of the country with modern methods will define the life areas of this region, and the corresponding variation of many species into geographical races will be more definitely known.

The present descriptions are merely preliminary to a fuller account that will be given in a future publication.

I have to express my obligation to Dr. C. Hart Merriam, Chief of the Biological Survey, under whose direction the field work was done, for the opportunity to report upon the material obtained. During the preparation of this paper I have had the most cordial assistance from Mr. Robert Ridgway, Curator of the Department of Birds in the National Museum, whose thorough knowledge of North American birds was placed freely at my service, enabling me to do the work in a fraction of the time that otherwise would have been necessary. I am indebted also to Mr. Charles W. Richmond, Assistant Curator of Birds in the National Museum, for assistance in a number of ways.

Throughout this paper the measurements given are in millimeters.

***Dendrortyx oaxacæ*, new species. OAXACA WOODGROUSE.**

Type, No. 155565, U. S. Nat. Museum, Dept. Agric. coll., ♂, Totontepec, Oaxaca, Mexico, July 24, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2227).

Distribution.—Mountains of eastern Oaxaca from the Cerro San Felipe, near Oaxaca City, to Mount Zempoaltepec, Oaxaca.

Description of type.—Top of head and nape, including crest, black. The white cheek stripe extending from below eye backward along side of gular black patch, and the white superciliary line, so prominent in the forms of *D. macrourus*, are very indistinct in this bird. The white borders to the feathers also so conspicuous on the back of the neck in that species are absent in *D. oaxacæ*. The feathers of neck, below the black throat patch, and on sides of breast are mostly dark chestnut with very narrow ashy borders along their sides, thus producing an almost uniformly chestnut area. The entire bird is darker than *macrourus* and is characterized by a suppression of the lighter markings seen in that species.

***Dendrortyx macrourus griseipectus*, new subspecies.**

GRAY-BREASTED WOODGROUSE.

Type, No. 155560, U. S. Nat. Museum, Dept. Agric. coll., ♂, Huitzilac, Morelos, Mexico, Dec. 30, 1892. Collected by E. W. Nelson (Orig. No. 628).

Distribution.—Heavy oak forest on the Pacific slope of the Cordillera, in the States of Morelos and Mexico.

Description.—Basal half or two thirds of breast feathers with narrow rufous shaft-streaks almost entirely concealed by broad, dingy gray borders of overlapping feathers; general color of breast nearly uniform dingy gray; back, rump, wings and flanks darker and more olive than in *macrourus*; flanks with very indistinct, narrow shaft-lines of rufous; size of *macrourus*.

The type of *Dendrortyx macrourus* was described and figured in Jardine and Selby's 'Illustrated Ornithology' (text to plates 38 and 49) and its range given as 'Mexico'. The description given in the work quoted applies most closely to birds from the mountains about the Valley of Mexico.

The *Tetrao marmorata* of La Llave, from the mountains about the same Valley, is undoubtedly a pure synonym of *macrourus*. Taking birds from these high, pine and fir clad mountains as typical representatives of the species, specimens from other parts of southern Mexico show variations worthy of recognition as geographical races.

***Dendrortyx macrourus striatus*, new subspecies. GUERRERO**

WOODGROUSE.

Type, No. 155567, U. S. Nat. Museum, Dept. Agric. coll., ♀, mountains near Chilpancingo, Guerrero, Mexico, Dec. 24, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2436).

Distribution.—The mixed forest of oaks, pines and firs on the high Cordillera of Guerrero above 8000 feet.

Description.—Rather smaller than the other forms, with a longer, slenderer beak. The most conspicuous character is the heavy rufous shaft-lines of the feathers along the entire flanks, which do not become obsolete posteriorly as in the others. The back is very dark and the rump and upper tail-coverts lack the mottling of whitish conspicuous in the others. The tail also is darker.

***Colinus salvini*, new species. SALVIN'S BOB-WHITE.**

Type, No. 155503, U. S. Nat. Museum, Dept. Agric. coll., ♂, Tapachula, Chiapas, Mexico, March 10, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3634).

Distribution.—The grassy coast plains between Tapachula and San Benito, Chiapas, Mexico.

Description of male.—Head, neck and fore breast dull black, feathers on back part of crown and nape spotted with whitish and brown along borders; top and sides of shoulders dull rufous, the feathers heavily bordered with dull, dark gray; middle of back, rump and upper tail-coverts blackish, the ends of the feathers with rufous brown mottling and gray edges; wing-coverts with irregular rufous shaft-lines, their sides grayish and brown with white spots along edges; scapulars like back but with conspicuous white spots along borders; primaries and secondaries grayish brown with lighter mottling of fulvous and gray on outer part of secondaries; lower surface of body, below black area on breast, dark rufous, the feathers faintly edged or washed with blackish giving a dingy shade to main color; lower tail-coverts mottled, or coarsely variegated with rufous, blackish and white.

Dimensions.—Wing 100, tail 54, culmen 15, tarsus 29.

Colinus coyolcos is the nearest relative of this bird, but in comparing eleven specimens of each species, including both sexes, it appears to be perfectly distinct.

It is named in honor of Mr. Osbert Salvin, one of the authors of the 'Biologia Centrali-Americana,' which has added so much to our knowledge of Mexican and Central American bird life.

***Colinus godmani*, new species. GODMAN'S BOB-WHITE.**

Type, No. 155493, U. S. Nat. Museum, Dept. Agric. coll., ♂, Jaltipan, Vera Cruz, Mexico, May 2, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3719).

Distribution.—The coast plains about Jaltipan and Minatitlan, Vera Cruz, and thence north to Lake Catemaco, in the same State.

Description of male.—Lores, superciliary stripe, chin, throat and sides of head up to ear-coverts white; a black band from near angle of gape, below eye, running backward over ear-coverts to join black area of neck; forehead and line along each side of crown black; middle of crown and nape blackish with brown and gray edgings to feathers; hind part, sides and lower part of neck, with breast, glossy black; shoulders and fore part of back chestnut, with narrow borders of black and then gray on each feather; lower back, rump and upper tail-coverts blackish, finely marked and mottled with olive, rufous brown and grayish white; the general color much darker than in *C. graysoni*; wing-coverts irregularly marked with black, with white spots on edges of feathers; tertials similar in general color to rump but with distinct white spotting along edges; quills dull brown with ashy borders on outer vanes; secondaries brown, transversely mottled with grayish and buffy on exposed parts; flanks, abdomen and lower tail-coverts light chestnut, with heavy black borders on feathers of flanks and abdomen; these markings producing a broadly streaked pattern; under tail-coverts black spotted; feathers on sides of crissum spotted with white on each vane near tip.

Dimensions.—Wing 100, tail 55, culmen 15, tarsus 29.

This is a very distinct species and one of the most beautiful in the genus. It is based upon five adult specimens and is named in honor of Mr. F. DuCane Godman in recognition of his valuable services to Mexican and Central American ornithology, as joint author with Mr. Salvin of the 'Biologia Centrali-Americana.'

***Colinus insignis*, new species. GUATEMALAN BOB-WHITE.**

Type, No. 155516, U. S. Nat. Museum, Dept. Agric. coll., ♀, Nenton, Guatemala, December 16, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3299).

Distribution.—Guatemala, near Nenton (and Valley of Comitán, in Chiapas, Mexico?).

Description of female.—Forehead, lores and superciliary stripe united in a buffy area; chin and throat of same color; feathers on top of head and nape black, tipped with chestnut, and edged on sides with buffy gray; a black line from angle of gape to ear-coverts; ear-coverts dark brown; feathers on back of neck and fore part of shoulders chestnut, heavily marked along sides with black and white spots and blotches; feathers on back, rump and upper tail-coverts blackish, irregularly barred and marked with dull, whitish gray and brown, and narrowly edged with

whitish which, contrasting with the blackish centres, produces the main pattern of coloration; tertiaries and wing-coverts similarly colored, but bordered with pale fulvous on inner webs; the fulvous borders heaviest on tertiaries; tail slaty gray, with vermiculations of paler gray and brown; quills dull brownish, edged on outer borders with ashy; sides and under part of neck with fore part of breast conspicuously marked with white, black and dull chestnut; sides of breast and flanks dull chestnut, the feathers marked on each side near the tip by a black area succeeded by a white spot; under tail-coverts chestnut with narrow black shaft-lines which broaden near ends of feathers.

Dimensions.—Wing 104, tail 58, culmen 16, tarsus 29.

While in the Valley of Comitán, Chiapas, we were told of the presence there of a species of Bob-white, but saw none during our short stay. At Nenton, in Guatemala, a locality half a day's journey beyond the Valley, we secured a single adult female which is very different from the female of any other known bird of this genus, and as none of the various species taken in the surrounding region show a gradation toward it, I feel justified in giving the new bird specific rank.

***Colinus graysoni nigripectus*, new subspecies. PUEBLA
BOB-WHITE.**

Type, No. 155522, U. S. Nat. Museum, Dept. Agric. coll., ♂, Atlitxco, Puebla, Mexico, August 9, 1893. Collected by E. W. Nelson (Orig. No. 1460).

Distribution.—Plains of southern Puebla.

Description.—Contrasted with typical *C. graysoni*, *nigripectus* may be distinguished by its paler shade of rufous both above and below, by the greater width of the black area bordering the white of throat and by its smaller size. The black of the neck extends from the border of the white throat area down over the fore part of the chest and also reaches farther back along the sides of the neck.

Dimensions.—Wing 110, tail 60, culmen 16, tarsus 30.

We found typical *graysoni* ranging south to the northern end of the Valley of Mexico. Thence southeasterly to the City of Puebla none were seen, but when we reached Atlitxco the present subspecies was common on the cultivated plain.

This subspecies is based upon five adult specimens.

Cyrtonyx merriami, new species. MERRIAM'S PARTRIDGE.

Type, No. 155543, U. S. Nat. Museum, Dept. Agric. coll., ♂, Mt. Orizaba, Vera Cruz, Mexico, March 21, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1830).

Distribution.—East slope of Mt. Orizaba, Vera Cruz.

Description.—The general pattern of head markings of *merriami* is much as in *montezumæ*, except that the black chin and throat area extends down to the chestnut on the lower neck and breast with no intervening white collar; the white superciliary band which extends under the black throat patch as a white collar in *montezumæ*, ends on each side of the neck in *merriami*. Bluish-black auricular patches extend forward on the sides of neck and form a broad junction with the black of the throat. The crown and crest are darker than in *montezumæ*, the light shaft-streaks on the back of the neck and shoulders are buffy whitish, becoming more and more intensely colored posteriorly, until on the longer scapulars and tertiaries they are almost or quite chestnut; the webs of the tertiaries are gray, becoming browner near the tips, and are crossed by several transverse, oblong black spots which are much narrower and more like bars than are the corresponding markings in *montezumæ*; the back and rump are blackish with golden buffy shaft-lines, brown mottling and narrow ashy edgings to the feathers; the upper tail-coverts are ashy with heavy rusty shaft-lines and several transverse black bars on each web of the feathers; the chestnut area of the breast and belly is as in *montezumæ*, but is of a lighter shade; the sides of the breast and flanks are slaty gray, lighter than in the latter species and marked with numerous round white spots about half the size of those in that bird. On the posterior portion of the flanks the white spotting is replaced by spots of buffy and chestnut. The rest of the lower parts are black as in *montezumæ*.

It is named in honor of Dr. C. Hart Merriam, under whose direction our work in Mexico has been done.

This Partridge appears to be closely related to *Odontophorus meleagris* of Wagler (Isis, 1832, p. 277), but differs in having the white spots of the flanks on a background of ashy gray instead of black. Like that species it lacks the white collar on the neck, which in *montezumæ* separates the black of the throat from the chestnut of the breast. Heretofore *meleagris* has been placed as a synonym of *montezumæ*, but the discovery of *C. merriami* with the same general style of markings given for *meleagris*, indicates that the latter is probably a well-marked species which has failed of recognition through lack of material. It was described from Mexico and should take its proper place in ornithological literature.

Megascops marmoratus, new species. MARBLED SCREECH OWL.

Type, No. 155676, U. S. Nat. Museum, Dept. Agric. coll., ♀, Catemaco, Vera Cruz, Mexico, May 4, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2002).

Distribution.—The only known specimen of this bird was taken in the sparsely wooded country bordering the northern shore of Lake Catemaco, Vera Cruz, at an altitude of about 1200 feet.

In size and general style of color this species is most closely related to *Megascops guatemalensis*, from which it may be distinguished by its generally paler and grayer coloration, and by the finer dark shaft markings, both above and below. The general color of the dorsal surface is light sepia brown, darkest on head and shoulders. The gray and dark brown, or dull fulvous, mottlings on both dorsal and ventral surfaces are much finer than in *guatemalensis*. The legs to toes are thickly barred with white and reddish brown, the latter color being much paler than in the last named species. Toes bare.

From *M. brasiliensis*, as represented in the National Museum collection from various Central American localities, *marmoratus* may be distinguished readily by the absence of the dull yellowish, or fulvous, suffusion which pervades the plumage, just below the surface, in that species.

Momotus mexicanus saturatus, new subspecies. COAST

MOTMOT.

Type, No. 155151, U. S. Nat. Museum, Dept. Agric. coll., ♂, Tehuantepec City, Oaxaca, Mexico, April 29, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2618).

Distribution.—Pacific coast district of Mexico from Mazatlan, Sinaloa to Tonala in Chiapas.

Description.—Contrasted with typical *M. mexicanus* the new form is larger and has the crown deeper rufous; the greens of the back are deeper and more olive; the rufous of the crown and neck extends farther over the shoulders, and the black area of the ear-coverts is more broadly edged with blue. The type measures as follows: Wing 126, tail 200, culmen 44, tarsus 29. A typical male of *mexicanus* measures: Wing 116, tail 170, culmen 39, tarsus 25.

Momotus mexicanus was described from specimens obtained at Temascaltepec in the State of Mexico. Having before me a con-

siderable series of these birds I find that specimens from the hot, dry 'tierra caliente' midway on the mountain slopes draining to the Pacific, from Etzatlan in Jalisco to southern Puebla and adjacent parts of Oaxaca, agree in being smaller and duller colored than those from the more humid districts near the coast, between Mazatlan and Tonalá. The bird of the interior being the typical form, it remains to describe that of the coast region.

Dryobates sanctorum, new species. CHIAPAS WOODPECKER.

Type, No. 154889, U. S. Nat. Museum, Dept. Agric. coll., ♂, Todos Santos, Guatemala, December 30, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3321).

Distribution.—High mountains of Chiapas and Guatemala.

Description.—The lower surface is an intense smoky brown, and the outer tail-feathers have their light areas nearly as dark. The dorsal stripe in most cases is like the ventral surface but is rather more fulvous. The type of *sanctorum* measures as follows: Wing 111, tail 64, culmen 25, tarsus 21. An average male from the region whence came the type of *jardinii* measures: Wing 127, tail 80, culmen 28, tarsus 21.

In the collections made by us in Mexico and Guatemala are two distinct Woodpeckers of the *jardinii* style. One series of eight specimens from the mountains of central Mexico, taken at localities ranging from the State of Michoacan to the mountainous borders of the Valley of Mexico and Mt. Orizaba, Puebla, are typical *jardinii*. South of this region, in the mountains of Oaxaca, these birds become extremely rare. Crossing the Isthmus of Tehuantepec and entering the high mountains of interior Chiapas and Guatemala, a smaller species is found which has hitherto been referred to the central Mexican bird, *jardinii*. Ten specimens before me from Chiapas and Guatemala, are very distinct from *jardinii*, being decidedly smaller and very much darker in color. Specimens in the National Museum from these two regions support the conclusions drawn from our collection.

Antrostomus ridgwayi, new species. RIDGWAY'S WHIP-
POOR-WILL.

Type, No. 154754, U. S. Nat. Museum, Dept. Agric. coll., ♀, Tlalkisala, Guerrero, Mexico, November 29, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2370).

Distribution.—Nothing is known of the range of this species, except that the type was taken in the mountains of interior Guerrero.

Description.—Crown dull grayish with a narrow black median line and fine parallel lines on each side; back, rump and tail, with exposed part of closed wings, gray like the crown and finely maculate with darker; back and rump marked with narrow, dark shaft-lines; scapulars marked with small, roughly triangular black spots bordered with buffy; gray of tail indistinctly and irregularly barred with darker, and feathers tipped narrowly with buffy; chin, throat and sides of head grizzled gray, darker than crown; neck encircled by a golden buffy collar, bordered along front below by a narrow whitish band; breast nearly as dark as throat; abdomen, flanks and lower tail-coverts pale buffy barred with gray and brown, the light color predominating. The type and only known specimen is an adult female.

Size.—Wing 153, tail 116, culmen 18, tarsus 16.

This form is readily distinguishable from any other known Mexican species of the genus by its generally lighter or grayer color and by the conspicuous, pale rufous or golden-buffy collar which completely encircles the neck.

***Delattria pringlei*, new species. PRINGLE'S HUMMER.**

Type, No. 155219, U. S. Nat. Museum, Dept. Agric. coll., ♂, from 15 miles west of Oaxaca City, Oaxaca, Mexico, September 14, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2288).

Distribution.—Mountains of central-western Oaxaca and thence into Guerrero.

Description.—Similar to *henrici* and *margarethæ* in general coloration, but differing in the color of the throat patch, which is royal purple. Using Ridgway's color nomenclature, the three species named above may be distinguished by the following colors of the throat patch.

D. henrici, phlox purple.

D. margarethæ, violet.

D. pringlei, royal purple.

We obtained specimens of *D. henrici* at Mt. Zempoaltepec in eastern Oaxaca. From central Oaxaca to central Guerrero *D. pringlei* was found, and in the interior of the latter State *D. margarethæ* was taken. Thus it appears that the three species occupy contiguous areas. This species is dedicated to the field botanist, Mr. C. G. Pringle, whose work in Mexico is so well known.

Platypsaris aglaia sumichrasti, new subspecies.

SUMICHRAST'S BECARD.

Type, No. 154701, U. S. Nat. Museum, Dept. Agric. coll., ♂, Otatitlan, Vera Cruz, Mexico, April 15, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1926).

Distribution.—The hot coast lowlands of central Vera Cruz and thence southward to Guatemala.

Description.—Adult male with entire top and sides of head and neck, including back to rump, uniform glossy black; rump dark ashy; tail and wings blackish brown. There is a large, dark rose-colored throat patch, and the crissum is dull, dark fulvous. The rest of lower parts are dark slaty, somewhat lighter on the flanks and abdomen. The females, compared with those of *aglaia*, may be known by their more intense coloration.

In the 'Revue Zoologique,' 1839, p. 98, Lafresnaye describes *Pachyrhynchus aglaia* and gives its habitat as 'Mexico.' He says that it is "above slate color, the nape and rump partly rufescent, pileum entirely black, forehead more grayish."¹ Beneath pale mouse gray, the chin grayer, the foreneck and breast with a broad spot of intense rose color." The rufescence of nape and rump mentioned above are due to the immaturity of his specimen.

In 'The Ibis' for 1859, p. 394 (pl. xiii), Mr. D. G. Elliot describes *Platypsaris affinis*, with habitat in 'Mexico.' He remarks that "This species of *Platypsaris*, to which I have given the name of *affinis*, is closely allied to *Platypsaris aglaia* (La Fresnaye), from which, however, it can easily be distinguished by its much smaller bill, and the general lighter color of its plumage, as well as the distinct black head, whereas there is little or no difference in the adult male of *P. aglaia*, between the color of the head and back. The black of the head and neck [in *affinis*] is separated from the plumbeous of the back¹ by a narrow line of ash color; and the ears are tinged with purple. Beneath, this species is much lighter than *P. aglaia*, being ashy white." The plate of *affinis* agrees with Mr. Elliot's description and at the same time agrees as closely as could be expected with Lafresnaye's description of *aglaia* of which *affinis* is a pure synonym. I take it that Mr. Elliot must have

¹ Italics are mine.

used a wrongly labeled specimen for his comparison in place of referring to the original description.

In Vera Cruz there are two perfectly good subspecies of this bird which were recognized and their proper ranges indicated years ago by Prof. Sumichrast. He states: "I am led to believe that there are two varieties of this bird in the State of Vera Cruz. The one especially found in the hot and temperate regions, of stouter proportions, *and in the adult male at least, with darker plumage,*¹ etc. The other which I have met with several times in the alpine region, is appreciably inferior in size to the preceding, and with lighter tints in the adult male. It is possible that to the latter variety the name of *P. affinis* has been given." Our explorations and the specimens in the collections at hand show that the birds agreeing in every way with the original descriptions of Lafresnaye's *aglaia* and Elliot's *affinis* are the ordinary residents of the tierra templada of Vera Cruz from Mirador, Jalapa, and Jico north to the State of Tamaulipas. The hot, coast lowlands and foothills from Tlacotalpam in Vera Cruz, and Tuxtepec in eastern Oaxaca, south toward Guatemala are inhabited by a very much darker bird which is readily distinguishable.

This new form is dedicated to the memory of Prof. Francis Sumichrast to whose labors we owe so much of our knowledge of Mexican birds.

***Empidonax bairdi occidentalis*, new subspecies. PLUMA
FLYCATCHER.**

Type, No. 154599, U. S. Nat. Museum, Dept. Agric. coll., ♂, (?), Pluma, Oaxaca, Mexico, March 18, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2566).

Distribution.—Heavy forests on Pacific slope of the Sierra Madre in Oaxaca.

Similar to *E. bairdi*, but dorsal surface brighter, clearer green; inside of bend of wings clear yellow in place of fulvous yellow; and under parts brighter or clearer in color.

This new race is a Pacific coast form of *bairdi*, which latter is an east coast species, the type having come from Cordova, Vera Cruz.

¹ Italics are mine.

***Picolaptes compressus insignis*, new subspecies. BROADLY
STRIPED WOODHEWER.**

Type, No. 154647, U. S. Nat. Museum, Dept. Agric. coll., ♂, Otatitlan, Vera Cruz, Mexico, April 15, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1938).

Distribution.—Lowlands of Vera Cruz.

Similar to *Picolaptes compressus* of Costa Rica, but distinguished by broader white shaft-lines on top of the head, neck and back, and their farther extension down the back. The white markings below are also broader than in ordinary Central American birds. The wings are of about equal length, but the tail of *insignis* is decidedly longer than in true *compressus*.

***Automolus pectoralis*, new species. OAXACA AUTOMOLUS.**

Type, No. 154672, U. S. Nat. Museum, Dept. Agric. coll., ♂, Pluma, Oaxaca, Mexico, March 18, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2571).

Distribution.—Found by us only in the heavy forest of the temperate zone near Pluma, Oaxaca, where they were not numerous.

Description.—Crown, nape, and back to rump, dull tawny brown, a little lighter on forehead; rump rich rufous; tail a little darker shade of same; lores and line under eye with ear-coverts united in a uniformly brown area; breast, throat and sides of neck and extending forward above the ear-coverts to eye a nearly uniform dark rufous brown; chin a slightly paler shade of same; middle of belly dark fulvous in marked contrast to breast; flanks dark, tawny olive; under tail-coverts like breast; exposed parts of folded wings dull rufous.

The uniform color on the top of the head and back, with the generally lighter coloration of the entire bird distinguishes this from other known Mexican and Guatemalan species of this genus. Wing 94, tail 86, culmen 25, tarsus 27.

***Otocoris alpestris oaxacæ*, new subspecies. OAXACA HORNED
LARK.**

Type, No. 145003, U. S. Nat. Museum, Dept. of Agric. coll., ♂, San Mateo del Mar, Oaxaca, May 15, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2700).

Distribution.—Valley of Oaxaca and coast plain immediately bordering the Oaxaca shore of the Gulf of Tehuantepec, from Salina Cruz to the border of Chiapas; ranging from sea level up to about 6000 feet.

Description.—The males of this bird are distinguishable from *chrysolæma* of the southern table-lands of Mexico by the greater extension of the vinaceous coloration on both upper and lower surfaces of the body. It is a lighter and brighter shade of this color than on *chrysolæma* and extends over the crown, nape, sides of neck, shoulders, rump, lesser and middle wing-coverts and sides of chest and flanks. In addition, the greater wing-coverts are more or less broadly bordered with the same. The exposed portion of the feathers of the folded wings as well as the back has the pale brown ground color suffused with a wash of this color, thus shading the entire upper surface behind the black area on the head. This general suffusion of vinaceous affords the readiest means of distinguishing this bird from *chrysolæma*. The yellow on the throat is paler in *oaxacæ* than in *chrysolæma*. The females differ from those of *chrysolæma* by being lighter brown above with a greater suffusion of pale vinaceous on the dorsal surface and along the flanks. The Oaxacan form averages a little smaller than *chrysolæma*.

Unfortunately my series of sixteen adult Oaxacan birds are all in summer plumage and more or less worn. A comparison of well plumaged birds with the fine series of *chrysolæma* would, no doubt, emphasize the differences noted. *Otocoris peregrina* of Bogotá is very similar in coloration to *chrysolæma* of the table-lands of central Mexico. Judging from the two specimens from Bogotá in the U. S. National Museum collection, it is a smaller form than either *oaxacæ* or *chrysolæma*. While on the highlands of Chiapas and Guatemala I looked carefully for 'Horned Larks but did not see a single individual.

O. alpestris oaxacæ was found breeding rather commonly in the Valley of Oaxaca and also along the salt flats near the sea about San Mateo del Mar. So far as known, its range is limited to parts of the State of Oaxaca. To the north its range meets that of *chrysolæma*. So far as our collections show, none of the several forms of *Otocoris* found in winter along the northern border of Mexico range south to the southern highlands about the Valley of Mexico and Plains of Puebla where true *chrysolæma* abounds.

Calocitta formosa azurea, new subspecies. BLUE-BACKED
CALOCITTA.

Type, No. 144529, U. S. Nat. Museum, Dept. Agric. coll., ♂, Huehuetan, Chiapas, Mexico, February 24, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3559).

Distribution.—The Pacific coast of Chiapas and thence southeasterly through Guatemala and other parts of Central America.

Description.— Back greenish blue with a grayish shade, the blue much lighter or brighter than in true *formosa*. A slightly more intense shade of this color extends over the exposed parts of the folded wings. The top of head, back and sides of neck are richer, brighter blue than the back. The crown feathers are white at base and usually have the distal half blue.

In some specimens a black area is interposed between the basal white and the blue of the tip, but not one of the twenty Central American specimens before me has the crown wholly black on the surface. Of twelve specimens of true *formosa*, six have the crown wholly black and six have the crown black and blue, with the black predominating in several. A black malar patch is present on most of the specimens of *formosa* but is exceptional in *azurea*. Among the latter it is common to find the forehead and basal half of the crest bluish white, which is exceptional in *formosa*. In *azurea* the chin, cheeks and neck down to the black pectoral crescent are white, washed with a light shade of blue that rests on the feathers like a delicate bloom varying in intensity as the bird is turned at different angles in the light. True *formosa* has the back dull grayish blue, the throat and adjoining part of the neck white. The crest of *azurea* appears to be larger than that of *formosa*. In size the two forms are about the same.

Eight specimens of this bird taken by us at Huehuetan, Chiapas, agree with numerous specimens in the National Museum from various Central American localities, in being bluer than those from the Pacific slope of Mexico between Tehuantepec and Colima. In the 'Biologia Centrali-Americana,' Aves, Vol. I, p. 509, the authors call attention to this difference but express the opinion that it is not a constant character. Having before me thirty-four specimens from various parts of Mexico and Central America, I find no difficulty in distinguishing the Central American bird from its Mexican relative.

***Cissolopha pulchra*, new species. ACAPULCO JAY.**

Type, No. 144794, U. S. Nat. Museum, Dept. Agric. coll., ♂, Acapulco, Guerrero, Mexico, January 13, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2481).

Distribution.— Rather common along the coast near Acapulco.

Description.— Head, neck and entire lower part of body black; shoulders, back, rump (with upper tail-coverts) cyanine blue becoming

hyacinth blue in certain lights; exposed parts of folded wings blue with a greenish tinge; tail hyacinth blue; under tail-coverts and lower part of thighs dark Berlin blue; feet and legs brownish, bill black; tail longer and bill slenderer than in *sanblasiana*. The type measures: Wing 147, tail 157, bill 36, tarsus 42. Like *Cissolopha sanblasiana* the forehead has a recurved crest of black feathers.

Comparing the three Acapulco birds with a series of thirteen specimens of *sanblasiana* the shades of blue on the dorsal surfaces do not appear to approach one another, that of each species being well marked and distinctive.

This beautiful Jay although found at the best known seaport of western Mexico appears to have remained undescribed up to the present time.

***Agelaius phoeniceus grandis*, new subspecies. TABLE-LAND
REDWING.**

Type. No. 144780, U. S. Nat. Museum, Dept. Agric. coll., ♀, from Atlitxco, Puebla, Mexico, July 29, 1893. Collected by E. W. Nelson (Orig. No. 1435).

Distribution.—Southern table-lands of Mexico.

Description.—The coloration of the males does not differ from that of the same sex in the other forms. The female is represented in the collection by specimens in rather worn summer plumage. Compared with specimens of *phoeniceus* from the United States in corresponding plumage, the females are darker, with the grayish or fulvous streaking on the lower surface limited mainly to the neck and breast, leaving the flanks plain. They are much darker in every way than the females of *longirostris*, and the restriction of the streaking below distinguishes them from the small Gulf coast bird (*richmondi*).

MEASUREMENTS OF *Agelaius phoeniceus grandis*.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
144773	1418	♂	Atlitxco, Puebla.	July 27, 1893.	Nels. and Goldm.	142	98	24	32
144774	1424	♂	" "	" 28, "	" " "	144	101	23	32
144777	1430	♂	" "	" 29, "	" " "	139	99	24	32.5
144779	1434	♀	" "	" " "	" " "	114	78	20	29
144780	1435	♀	" "	" " "	" " "	117	78	20	30

The southern table-land region of Mexico is inhabited by a well marked form of Redwing having a range nearly coincident with that of typical *A. gubernator*. Like *gubernator* of this region it is the largest form of the species and has a stouter or heavier bill than the others.

***Agelaius phoeniceus richmondi*, new subspecies. RICHMOND'S REDWING.**

Type, No. 144766, U. S. Nat. Museum, Dept. Agric. coll., ♀, from Tlacotalpam, Vera Cruz, Mexico, April 21, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1959).

Distribution.—The Gulf coast lowlands of Mexico from near Tampico, south through Yucatan to Nicaragua.

Description.—The males of *richmondi* are colored as in other forms of this species. The females are but slightly marked with lighter on the back. Below on the neck and breast, the fulvous streaks formed by the edgings of the feathers are so broad that they form the main color of that area, the dark shaft markings appearing as narrow streaks. They are much darker than the females of *longirostris* or *bryanti* in general coloration. Both sexes differ from their neighboring forms in small size and in having comparatively long, slender bills.

The National Museum series contains specimens of this form from various localities in Yucatan and on the east coast of Nicaragua. To the north they grade toward the larger northern birds.

MEASUREMENTS OF SEVEN SPECIMENS OF *Agelaius phoeniceus richmondi*.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
144763	1963	♂	Tlacotalpam, Vera Cruz.	Apr. 22, 1894.	Nels. and Goldm.	106	77	24	27
144765	1957	♂	Tlacotalpam, Vera Cruz.	" 21, "	" " "	111	87	27	28.5
144764	1964	♂	Tlacotalpam, Vera Cruz.	" 22, "	" " "	109	82	26	29
129784	—	♂	Yucatan.	?	F. Gaumer.	115	83	24	27
126272	3680	♂	San Carlos, Nicaragua.	Feb. 25, 1892.	C. W. Richmond.	105	77	25	28.5
144767	1958	♀	Tlacotalpam, Vera Cruz.	Apr. 21, 1894.	Nels. and Goldm.	91	66	21	24
144766	1959	♀	Tlacotalpam, Vera Cruz.	" " "	" " "	92	67	21	26

I take pleasure in dedicating this form to Mr. Chas. W. Richmond, Assistant Curator of Birds in the National Museum, who obtained specimens of it in Nicaragua.

Agelaius gubernator californicus, new subspecies. CALIFORNIA BICOLORED BLACKBIRD.

Type, No. 74278, U. S. Nat. Museum, ♀ ad., Stockton, California, April 17, 1878. Collected by L. Belding.

Distribution.—Coast region and valleys of California and Oregon north to the Columbia River.

Description of type, in breeding plumage.—The crown and back of neck and shoulders streaked with the grayish and buffy edgings to feathers; primaries, secondaries, tertiaries and wing-coverts edged with whitish; chin and throat fulvous with black shaft-streaks on most of feathers; entire breast and sides of neck streaked coarsely with the fulvous whitish borders to feathers; general color of rest of plumage dull blackish. The males of the two forms agree in coloration. The type measures: Wing 108, tail 75, culmen 19, tarsus 28.

In comparing specimens of this species from the table-lands of Mexico with those from California certain differences are found which warrant the naming of a geographical race. As *A. gubernator* was described from the table-lands of Mexico it follows that the Californian bird is the new one.

The breeding females of typical *gubernator* from the plains of Puebla lack nearly all of the light streaking on the entire upper surface, including the wings, and the light streaks are less marked on the lower surface.

Among other differences from true *gubernator* are the notably smaller size and slenderer bills of the northern birds, as shown by the accompanying tables of measurements. The specimens from Atlixco and Patzcuaro are in worn or imperfect plumage so that the dimensions of their wings and tails fall below the normal. The Californian specimens measured were all in good plumage.

True *gubernator* ranges over all of the southern end of the Mexican table-land north of Oaxaca, and specimens have been examined from Lagos in Jalisco, Guanajuato, Lake Patzcuaro in Michoacan, the Valley of Mexico, the Plains of Puebla, and Orizaba in Vera Cruz. Between the present ranges of these two

forms there is now a broad area several hundred miles across in which neither is known to occur. Two males in the National Museum collection from the Pacific coast of Mexico (one from the State of Colima and the other from Mazatlan) are smaller than table-land specimens in length of wing and tail, and their bills are slenderer, thus approaching the California bird.

MEASUREMENTS OF *Agelaius gubernator californicus* FROM CALIFORNIA.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
139543		♂	Pescadero.	Feb. 21, 1894.	J. E. McLellan.	125	84	20	29
142098		♂	Carbondale.	Mar. 28, "	C. P. Streater.	126	94	22	30
152620		♂	Cahto.	May 4, 1889.	R. C. McGregor.	129	90	24.5	31
152625		♂	"	" 21, "	" "	127	86	23	31
85832		♂	Nicasio.	" 26, 1877.	C. A. Allen.	128	89	22	30

**MEASUREMENTS OF *Agelaius gubernator gubernator* FROM THE MEXICAN
TABLE-LAND.**

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
109065		♂	Orizaba.	?	Botteri.	142	97	24	31
71216		♂	Valley of Mexico.	?	?	147	100	23	32
38186		♂	Orizaba.	?	Botteri.	137	91	22.5	32
144772	417	♂	Patzcuaro.	Oct. 17, 1892.	E. W. Nelson.	143	98	22	31
144771	1423	♂	Atlixco.	July 28, 1893.	"	134	97	23	32.5
144784	1425	♀	"	" " "	"	116	79	19	29
144781	1433	♀	"	" 29, "	"	114	82	20	28
147045		♀	Mexico.	?	Boucard.	119	79	19	29

Ammodramus savannarum obscurus*, new subspecies.*MINATITLAN SPARROW.**

Type, No. 143801, U. S. Nat. Museum, Dept. Agric. coll., ♂, Minatitlan, Vera Cruz, April 21, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3709).

Distribution. — Grassy savannas of the hot lowlands of Vera Cruz, near Minatitlan, and probably elsewhere in suitable situations along the tropical Gulf coast belt to the south.

Description of type. — The dorsal surface is almost wholly black or blackish brown, including the top of the head and the upper tail-coverts. This generally dark coloration is broken by a narrow, pale buffy median stripe on the head and by a small amount of ashy brown, fulvous and dark chestnut edgings to the feathers of the neck, back and rump. The feathers of the top and sides of the neck on birds of the eastern United States are usually dull rufous and ashy, forming a distinctly lighter area than the crown or back, but in the Minatitlan birds this area differs but little in general shade from the color on the rest of the dorsal surface. These neck feathers have black centres with a very slight edging of dark rufous followed by dingy grayish. The scapulars, lower back, and rump feathers are tipped with small spots of dark chestnut. The lower parts, except abdomen, are dark, dingy buffy, lighter on the chin and throat, and darker or more brownish on the flanks; the abdomen is dingy white. The wings and tail are blackish brown edged with lighter shades of brown and gray. The females from this locality, while averaging darker than ordinary birds from the eastern United States, are scarcely distinguishable when compared with very dark specimens from that region.

The specimens from the type locality are the only ones I have seen of this form, but it undoubtedly occurs in suitable situations both to the north and south of that place and probably have nearly the same distribution as *Agelaius p. richmondi*.

While at Minatitlan the last of April, 1896, we found these Sparrows in full song and preparing to nest on the open grassy savannas, often of considerable extent, that are found scattered over the plains of that district. They were rather common, with habits and notes similar to those of their relative of the eastern United States. Their size is also about the same.

***Junco fulvescens*, new species. CHIAPAS JUNCO.**

Type, No. 143906, U. S. Nat. Museum, Dept. Agric. coll., ♀, San Cristobal, Chiapas, Mexico. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3079).

Distribution.—Highlands of central Chiapas, Mexico.

Description of type.—Top and sides of head and neck dull ashy gray; back dull rufous with exposed borders of secondaries and tertials a brighter shade of same; rump and upper tail-coverts olive brown; chin, throat, middle of breast and abdomen dull white; sides of breast, flanks and under tail-coverts dull, olive-shaded buffy; over two-thirds of outer web and about one-half of inner web of outer tail-feather white; about one-third of inner web of second tail-feather white; general color of undescribed parts of wings and tail light clove brown; lores blackish. Measurements: Wing 77, tail 67, culmen 15, tarsus 23.

The females are smaller and rather duller colored. In winter dress the rufous of the back becomes dark, dull chestnut. In the large size of the beak as well as in other proportions these birds are similar to *alticola*, but the specimens before me show no intergradation in coloration between the two birds.

An examination of a large series of Mexican and Guatemalan Juncos, including specimens of *phaenotus* and *alticola* from the vicinity of the type localities, reveals the interesting fact that a hitherto undescribed species inhabits the highlands of central Chiapas. Sixteen specimens of this bird are now before me. Its range lies adjacent to that of *alticola* but is wholly cut off from that of *phaenotus* by the low country at the Isthmus of Tehuantepec. Nearly all of the adult specimens of *fulvescens* at hand are in worn summer plumage or just entering the fall molt. The type, however, is in fairly well preserved summer plumage.

***Peucaea ruficeps fusca*, new subspecies, BROWN SPARROW.**

Type, No. 135909, U. S. Nat. Museum, Dept. Agric. coll., ♀, from Etzatlan, Jalisco, Mexico, June 18, 1892. Collected by E. W. Nelson (Orig. No. 185).

Distribution.—The southwestern part of the Mexican table-land region, and bordering mountains, in the States of Michoacan and Jalisco. Its range to the north merges into that of *scotti*, and to the east and south-east into that of *boucardi*.

Description.—In the present race the most obvious character lies in the intensity of the browns on the entire dorsal surface and the scantiness of ashy borders to the feathers, thus giving a deep, warm brown color to this area. The dark rufous of the pileum shades gradually into the vandyke brown of the back. The ashy borders of the dorsal feathers, so far

as can be judged by the specimens before me, are narrower and darker than usual in the other forms, thus producing the more uniformly brown appearance. Six specimens before me give the following dimensions.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus
135909	185	♀	Etzatlán, Jalisco.	June 18, 1892.	E. W. Nelson.	63	58	12	20.5
135911	296	♀	Querendaro, Mich.	Aug. 6, "	"	66	64	14	22
135914	309	♀	Querendaro, Mich.	" 9, "	"	64	61	13	22
135910	192	♂	Etzatlán, Jalisco.	June 23, "	"	63	57.5	13	21.5
135912	306	♂	Querendaro, Mich.	Aug. 8, "	"	67	63	13	22
135913	307	♂	Querendaro, Mich.	" " "	"	67	65	14	22

***Peucaea ruficeps australis*, new subspecies. SOUTHERN SPARROW.**

Type, No. 136131, U. S. Nat. Museum, Dept. Agric. coll., ♀, City of Oaxaca, Oaxaca, June 15, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2104).

Distribution.—That outlying part of the Mexican table-lands occupied by the Valley of Oaxaca, and adjacent mountains up to 6000 or 7000 feet. On the north its range merges into that of *boucardi*, which is common about the Valley of Mexico and on the plains of Puebla.

Description.—Similar to *P. boucardi*, from which it differs in the light rusty-red shade of the rufous on the dorsal surface, the small amount of ashy bordering the feathers of the back, and the more fulvous lower surface.

In general coloration it is much nearer *scotti* of Chihuahua and southern Arizona, but the rufous of *australis* is of a paler or more rusty shade, and it is smaller with a heavier bill. The present form is at once distinguishable from *fusca* (of this paper) by the very much lighter shade of the red or rusty color on the dorsal surface.

The following are the measurements of two specimens of this form.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
136131	2104	♀	City of Oaxaca.	June 15, 1894.	Ncls. and Goldm.	61	61	13	21
143925	2601	♀	Totolapa, Oaxaca.	Apr. 20, 1895.	" " "	62	64	14	21

***Cardinalis cardinalis littoralis*, new subspecies. COAST
CARDINAL.**

Type, No. 144301, U. S. Nat. Museum, Dept. Agric. coll., ♂, from Coat-zacoalcos, Vera Cruz, Mexico, April 14, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3690).

Distribution.—The moist, hot, coast lowlands of Vera Cruz, near Coat-zacoalcos and Minatitlan, and undoubtedly ranging into the adjacent parts of Tabasco.

Description.—The males can be distinguished at once from the other Mexican Cardinals by the intensity of their coloration. With the exception of the black throat patch the entire lower surface, the sides and back of neck and pileum are of a rich poppy red with a wash of carmine. The back including dorsal surface of wings and tail, is intensely rich, dusky red. The capistrum is intensely black and a narrow black band connects the black of the lores across the forehead.

The female is similar in coloration to *yucatanicus*, but the colors are brighter. The black of the capistrum, however, is duller and more of a smoky or dingy shade in the only female seen of the new race.

They are larger and heavier birds than *yucatanicus* and approach more closely in coloration to *saturatus* from Cozumel Island than to any other known form, but are much more intensely colored even than the latter. Specimens of Cardinals obtained at Cate-maco and Otatitlan in Vera Cruz, and near Tuxtepec in eastern Oaxaca, are from a district lying between the type locality of *littoralis* and the range of *coccineus*, of the adjacent country to the north, and show a gradation between the two forms.

At Coatzacoalcos they were rather common in the brush-grown sand hills skirting the coast, during April and May, 1896.

Below are the measurements of five specimens of this form :

U. S. Nat. Mus. No.	Orig. No.	Sex	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
144301	3690	♂	Coatzacoalcos.	Apr. 14, 1896.	Nels. and Gold.	92	105	20	26
144302	3682	♂	"	" 13, "	" " "	92	103	19	26.5
144303	3693	♂	"	" 15, "	" " "	85	95	19	25
144305	3714	♂	Minatitlan.	" 22, "	" " "	90	99	19	26
144304	3703	♀	"	" 20, "	" " "	88	98	20	25

***Chlorospingus atriceps*, new species, BLACK-CROWNED
CHLOROSPINGUS.**

Type, No. 143613, U. S. Nat. Museum, Dept. Agric. coll., ♂, Pinabete, Chiapas, Mexico, February 9, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3446).

Distribution.—Heavily wooded mountain slopes of Chiapas, near the Guatemalan border, on the Pacific slope.

Description.—Feathers of pileum and ear-coverts very dark grayish with black tips, giving the surface a blackish shade slightly clouded with grayish; lores very dark grayish; a black band from base of under mandible back to ear-coverts, along lower border of eye; a short, white, post-ocular streak ends above the ear-coverts; sides of neck very dark ashy brown; remainder of dorsal surface, including exposed borders of closed tail and wings, dark oil green; throat dingy white spotted with numerous black tips to feathers; pectoral band light olive green; flanks and under tail-coverts a darker shade of same, nearly equalling color of back; abdomen dingy white; under wing-coverts white. Dimensions: Wing 75, tail 63, culmen 12, tarsus 22.5.

This species is very similar in general appearance to *C. pileatus* of Costa Rica but may be distinguished at once by the absence of the white superciliary line.

Phoenicothera rubicoides affinis, new subspecies. OAXACA
TANAGER.

Type, No. 143571, U. S. Nat. Museum, Dept. Agric. coll., ♂, Pinotepa. Oaxaca, Mexico, February 21, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2538).

Distribution.—Foothills of the coast range on the Pacific slope of Oaxaca, and probably including the same belt in the State of Guerrero.

The males of this form differ from specimens of typical *rubicoides* taken on the east coast of Mexico and in Guatemala, by having the red of the entire body of a lighter or less intense shade, and in the red of the lower parts being more uniform, the contrast between the color of the throat and breast and that of the abdomen and rest of lower parts not being so marked. The female has the crest of a lighter yellow than in birds from the Gulf coast, and the back is a lighter, brighter green. The lower surface is lighter and more inclined to buffy and the throat patch is less marked, thus agreeing with the male in the uniformity of the color on the lower surface.

Birds from the Isthmus of Tehuantepec are intermediate between those from Vera Cruz and those from Pinotepa. The lighter colors of birds from the Pacific coast district of Oaxaca is what might be expected from the fact that the climate is much more arid there than on the Gulf coast where the more intensely colored, typical form is found.

Dendroica goldmani, new species. GOLDMAN'S WARBLER.

Type, No. 143169, U. S. Nat. Museum, Dept. Agric. coll., ♂, Hacienda Chancol, Guatemala, January 4, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3341).

Distribution.—High, wooded slopes of the main Cordillera in western Guatemala.

Description of male.—Chin whitish; a conspicuous white spot just under ear-coverts and bordering yellow throat patch; yellow crown patch bordered behind by a well marked white nuchal spot about one half as large as crown patch; forehead and entire sides and top of head and neck, outside of yellow and white areas, jet black; interscapular region black with gray edges to feathers; rump bluish, blackish gray; upper tail-coverts black; white borders of wing-coverts forming a broad white patch as in

nigrifrons; wings and tail blackish, edged with dull grayish; breast black, flanks and abdomen, back of yellow pectoral spots, white mixed with blackish; under tail-coverts white.

The type is the only specimen obtained of this beautiful bird. It was shot in an old potato field in the forest a little below 10,000 feet. Others were seen and the bird did not appear to be uncommon, but not appreciating its distinctness from *auduboni* at the time, I failed to secure additional specimens.

Its nearest relative is *Dendroica nigrifrons* Brewster, from which, however, it presents various striking differences. It has yellow markings of the same shade and distribution as in *nigrifrons* and *auduboni*.

This species is dedicated to my assistant, Mr. E. A. Goldman, whose services have aided so largely in the formation of the collection upon which the present paper is based.

Basileuterus flavigaster, new species. YELLOW-BELLIED WARBLER.

Type, No. 143265, U. S. Nat. Museum, Dept. Agric. coll., ♂, Yajalon, Chiapas, Mexico, October 17, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3191).

Distribution. — From Yajalon, Chiapas, to San Andres Tuxtla, Vera Cruz.

Description of type. — Crown rufous, darker than in *rufifrons*, with a faintly marked median line of lighter strongest on the forehead; superciliary stripe white; a white spot just back of and below the ear-coverts on the side of the neck, forming the termination of a grizzled whitish band which extends back along the side of the head, from the chin, and reaches up nearly to the lower eyelid; lores, a narrow line around each side of the eye, and a postocular spot black; cervical collar on the sides and back of the neck, just back of the rufous crown, olive-shaded, ashy-gray; remainder of upper parts including exposed borders of the wing and tail-feathers dark olive green; throat, breast and middle of belly bright yellow, but less intense and slightly washed with buffy on the latter; the sides of the breast and flanks olive green, shaded with buffy posteriorly; the under tail-coverts are buffy. Its size is about the same as *rufifrons*.

This species has the head markings much as in *rufifrons*, with the yellow ventral surface of *delatirii*. Specimens from San Andres Tuxtla, Vera Cruz, are not quite so richly yellow below as the type.

Heleodytes alticolus, new species. MOUNTAIN WREN.

Type, No. 142855, U. S. Nat. Museum, Dept. Agric. coll., ♂, Huitzilac, Morelos, Mexico, December 28, 1892. Collected by E. W. Nelson (Orig. No. 608).

Distribution. — The Pacific slope of the Sierra Madre in the States of Morelos and Mexico from 6000 to 9000 feet.

Description of type. — Crown and forehead grayish brown; back and sides of neck streaked with white and blackish brown; back and rump irregularly barred with white and blackish brown, the feathers being bordered with dull ashy gray slightly shaded with fulvous; two middle tail-feathers with inner webs uniform dark ashy gray; throat and breast white with large, rounded, blackish brown spots; flanks, abdomen and under tail-coverts barred with dingy whitish and blackish brown. Dimensions: Wing 97, tail 89, bill 25, tarsus 27.5.

The following dimensions are of an adult male *megalopterus* from near Jalapa, in Vera Cruz. Wing 90, tail 81, bill 21, tarsus 27.

Mr. Ridgway has had the opportunity of examining Lafresnaye's types in this group and has determined that true *Campylorhynchus pallescens* of that author is a South American species, while the *Campylorhynchus pallescens* of Baird's Review of Am. Birds, I, p. 101, and of the Biologia Cent.-Am., Aves, I, p. 69 is really *Campylorhynchus megalopterus* Lafr., which inhabits the mountain slopes of Vera Cruz.

This clears up the ground in such a way as to leave it quite certain that the specimens of *Heleodytes* obtained by me in the heavy oak forest on the mountain slopes of northern Morelos represent an undescribed species. The specimens from the type locality are the only ones of this bird at hand. It may be distinguished at once from *megalopterus* by its larger size and by the greater clearness of its colors, *alticolus* showing but slight traces of the pale wash of dingy fulvous that obscures the colors of the other.

Alticolus is closely related to *megalopterus*, and I should be inclined to regard them as geographical races of the same species were it not for two considerations: First, my specimens show no signs of intergradation, and second, the ranges of the two forms are isolated from one another by a broad belt of unsuitable country, where neither occurs. Under these circumstances I have no alternative but to treat the two as species until data are at hand to prove them otherwise.

Helcodytes occidentalis, new species. COLIMA WREN.

Type, No. 142863, U. S. Nat. Museum, Dept. Agric. coll., ♂, Sierra Nevada de Colima of Jalisco, Mexico. April 20, 1892. Collected by E. W. Nelson (Orig. No. 102).

Distribution.—Oak forest at the base of the Sierra Nevada de Colima on the border between the states of Colima and Jalisco.

Description.—Compared with typical examples of its nearest relative, *H. jocosus*, this species may be recognized by its reddish brown crown and the brighter markings of the dorsal surface, and also by the obsolescence of the last dark bar on the outer end of the outer tail-feather. The postocular stripe is reddish brown instead of blackish as in *jocosus*, and the flanks and under tail-coverts are marked and shaded with bright fulvous. The ventral surface is less heavily spotted with black, and its bill is proportionately shorter and stouter. The two species are of about the same size.

Helcodytes humilis rufus, new subspecies. GUERRERO
WREN.

Type, No. 142820, U. S. Nat. Museum, Dept. Agric. coll., ♀, Aguahuitzotla, Guerrero, Mexico, December 28, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2456).

Distribution.—Interior of Guerrero along lower slope of the Sierra Madre near Chilpancingo.

Description.—Feathers of forehead and crown black, with borders of dark rufous becoming richer and redder on nape, back and sides of neck. Thence the entire back, including rump and upper tail-coverts, is overlaid with rusty brown a little lighter than the nape. Light markings on exposed part of wing are same shade as back. Chin, throat and ear-coverts white; breast and middle of belly white, washed with pale fulvous; entire flanks and under tail-coverts dull fulvous.

H. humilis rufus differs from *humilis* of the coast districts of western Mexico, of which I have a good series at hand, in the greater intensity of the rufous on the dorsal surface, and in the greatly added intensity of the fulvous wash below.

The differentiation of this form agrees with certain topographic and climatic differences between the localities inhabited by it and those inhabited by the typical one.

Heleodytes capistratus nigricaudatus*, new subspecies.*BLACK-TAILED WREN.**

Type, No. 142806, U. S. Nat. Museum, Dept. Agric. coll., ♂, San Benito, Chiapas, Mexico, March 11, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3648).

Distribution.—Pacific coast of Chiapas, near Tapachula, and thence into adjacent parts of Guatemala.

Heleodytes capistratus nigricaudatus is very much like *H. capistratus castaneus* Ridgw. in the uniform chestnut coloration of the back, and, indeed, in other respects except the color of the tail. In the present form the two central rectrices are black, or blackish brown, with one and sometimes two subterminal white or whitish bars, the feathers being tipped with a narrow grayish or blackish brown border and lacking the several brownish bars which are conspicuously present in birds from Costa Rica, Nicaragua and Guatemala. In the eleven specimens of *nigricaudatus* before me this character is so constant that, despite the close resemblance of this form to *castaneus* in other particulars I feel justified in recognizing it as a geographical race occupying the extreme north-western border of the range of the species along the Pacific coast.

Salpinctes obsoletus neglectus*, new subspecies. CHANCOL.*ROCK WREN.**

Type, No. 142866, U. S. Nat. Museum, Dept. Agric. coll., ♂, Hacienda Chancol, Guatemala, January 3, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3330).

Distribution.—Highlands of western Guatemala and probably of central Chiapas.

Description.—*Salpinctes o. neglectus* may be distinguished from the Rock Wrens of the western United States and the highlands of northern and central Mexico by its clearer or more ashy gray color, the intensity of the black shaft-lines and white tips of the feathers on the dorsal surface, the black and white markings being quite clearly and sharply defined. The ear-coverts are dark brown, the cheeks are white with blackish brown mottling, and the sides of the neck are brown, variegated with white. The rump is a little deeper fulvous than in *obsoletus* from the Mexican highlands. The tail is also darker than in that bird. The throat is whitish, the breast and sides are mottled with distinct black spots, and the flanks are dull fulvous. Size about the same as typical *obsoletus*.

The type of this form came from the high, cold table-lands about Chancol at an elevation of ten thousand feet. There they were common in the open pine forest. In the lower and warmer district about Nentón, Guatemala, with typical examples of *neglectus*, we obtained two specimens that, while agreeing with the Chancol bird more than with *obsoletus*, show a gradation toward the latter, and this probably continues through Chiapas. Specimens from the plain about Quezaltenango and the adjacent Volcano of Santa María are like the Chancol specimens.

Although I have no specimens of *S. guttatus* at hand, the description of that species shows it to be distinct from *neglectus*.

Hylorchilus,¹ new genus.

Type, Catherpes sumichrasti LAWR. Proc. Acad. Nat. Sci. Phila., 1871, p. 233.

The specimen used in describing the characters of this genus is No. 142878, U. S. Nat. Museum, Dept. Agric. coll., ♂ (?), Motzorongo, Vera Cruz, Mexico, March 5, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1806).

Generic Characters.—Like *Microcerculus*, this genus is characterized by the plainness of its dark brown plumage, the tail and wings being unmarked, as is most of the body. The secondaries are almost of the same length as the primaries, and the tail is short and spiky in form, being made up of soft slender feathers narrowed gradually at the tip. The tail is so short that it does not reach to the end of the outstretched feet in the dried skin. The body is short and stout, with strong legs and feet as in *Microcerculus*. The bill, however, is more as in *Catherpes*, being long, unnotched at the tip and with similarly narrow, oval, slit-like nares. The bill is heavier and its curve is decidedly less than in *Catherpes mexicanus*, the nares are slightly inclined toward the front instead of being parallel to the gape as in *Catherpes*, and the membrane forming the upper border of the orifice is a little curved and inflated along its edge.

Catherpes sumichrasti was described from a single imperfect specimen taken at Mata Bejuco in Vera Cruz, Mexico. Owing to the absence of the tail in the only known specimen, it has been referred provisionally to the genus *Catherpes* by all subsequent authors. Fortunately we secured two perfect specimens at

¹ ὄρη, forest, and ὄρχλος, wren, in reference to the habits of the type species.

Motzorongo, in Vera Cruz, in the same region from which came the original specimen, and I am now in position to properly locate the species generically. It forms a distinct type of Wren of generic value and having *Microcerculus* as its nearest ally. Some of its characters indicate a close relationship to *Catherpes* as well, so that its position appears to be that of an intermediate group between those two genera.

The measurements of the two specimens in the collection are given below and show the proportions of the parts. With only the single species to deal with, it is difficult to decide between specific and generic characters, but the distinctive points named will serve until modified by the discovery of other species.

MEASUREMENTS OF *Hylorchilus sumichrasti* (Lawr.).

Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Bill.	Tarsus.
♂ (?)	Motzorongo, Vera Cruz.	Mar. 5, 1894.	Nels. and Goldm.	68	42	32	31
♀	" "	" " "	" " "	65	39	29	27.5

These birds inhabit the gloomiest recesses of the heavy tropical forest, keeping about jutting rocks on steep hillsides, where the forest is so dense that the undergrowth is sparse and the sun scarcely penetrates to the ground. We found them only at an elevation of from about 800 to 1200 feet above sea level on the base of the Cordillera fronting the Gulf of Mexico. They appear to be very local in their distribution, for we searched for them in similar situations elsewhere in eastern Mexico without success.

***Hemiura pacifica*, new species. PACIFIC WREN.**

Type, No. 142935, U. S. Nat. Museum, Dept. Agric. coll., ♂, Manzanillo, Colima, Mexico, February 8, 1896. Collected by E. W. Nelson (Orig. No. 46).

Distribution.—The type and only known specimen of this species was taken at Manzanillo on the west coast of Mexico.

Description.—Compared with *H. leucogastra* and *H. leucogastra brachyura* from the east coast of Mexico this species may be distinguished

by its more rufous dorsal surface, which is entirely of a warm rufous brown. The superciliary line and the rest of the sides of the head are marked as in the other species. The sides of the neck and breast are ashy, and the flanks and under tail-coverts are fulvous brown, brighter than in the other forms. The rest of the lower parts are white. The wings and tail are longer, the bill is about the same.

A specimen of *Hemiura* taken by us at Acapulco is indistinguishable from Yucatan specimens, representing *brachyura*, so the present species is probably not widely spread along the west coast of Mexico.

***Henicorhina mexicana*, new species. MEXICAN WOOD
WREN.**

Type, No. 143007, U. S. Nat. Museum, Dept. Agric. coll., ♂, Jico, Vera Cruz, Mexico, June 24, 1893. Collected by E. W. Nelson (Orig. No. 1272).

Distribution. — Both coasts of Mexico north of the Isthmus of Tehuantepec, in the heavy forests of the mountain slopes of the 'tierra templada.' There are specimens in the collection from the Sierra Madre near Chilpancingo, Guerrero; Mt. Zempoaltepec, Oaxaca, and Jico in Vera Cruz.

Description of type. — Entire top of head, neck and back with upper tail-coverts rusty rufous, a little duller on the head but showing no marked contrast between that and back; exposed parts of folded wings and tail similar to back and crossed by fine blackish bars; lores dark grayish; superciliary stripe white with fine black edgings to feathers; postocular stripe blackish; feathers of ear-coverts and sides of throat and neck with white shaft-lines and black borders, producing a bright black and white striped pattern; chin and throat whitish; breast dark ashy; flanks, abdomen and under tail-coverts dark rufous.

The ashy-breasted Wrens of this genus, in Mexico and Guatemala, have been constantly referred to certain South American species. In Baird's 'Review of American Birds' he gives *Heterorhina griseicollis* as questionably from Guatemala to Mexico. Salvin and Godman in the 'Biologia Centrali-Americana,' Vol. I, p. 80, unite all the Mexican and Central American birds of this style under *Henicorhina leucophrys* Toch. Having a considerable series of these birds before me from numerous Mexican localities, in addition to the U. S. National Museum series from Central America, I find no difficulty in recognizing three distinct forms

north of the Isthmus of Panama. Unfortunately there is no series of specimens at hand to determine the relationship between the birds of Costa Rica and those of South America. Leaving birds from the last two regions out of the question, we have in Guatemala and Chiapas a bird similar in general style and marking to the Costa Rican ones, but readily separable from them, which I recognize as a geographical race of South American *leucophrys*. These birds are found in suitable places from Guatemala to the Isthmus of Tehuantepec. The low country of the Isthmus forms an abrupt cut-off, and beyond that, when the southern end of the Sierra Madre is reached, we find a very distinct bird which occurs along both coasts and which I have recognized as specifically distinct from the others.

The series of eighteen specimens at hand from the two sides of the Isthmus of Tehuantepec, Chiapas and Oaxaca, show no signs of approach to one another, and the young birds in their first plumages are also readily distinguishable.

***Henicorhina leucophrys capitalis*, new subspecies. GRAY-
CROWNED WOOD WREN,**

Type, No. 143018, U. S. Nat. Museum, Dept. Agric. coll., ♂, Pinabete, Chiapas, Mexico, February 8, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3439).

Distribution.—Heavily wooded mountain slopes in the 'tierra templada' on both sides of Chiapas and thence into adjacent parts of Guatemala.

Description.—A broad band of dark gray extends from the base of the upper mandible back along the top of the head to the fore part of the shoulder and is bordered on each side by a narrower dark line which is black or blackish. The sides of the head and neck as well as the lower parts are very similar to the same parts in *mexicana*. The back and rump are dark rufous in strong contrast to the color on the top of the head and neck, the line of demarcation being very well defined.

Specimens from the Volcan de Fuego, in Guatemala, belong to this race although inclining somewhat toward the birds of Costa Rica. The latter, however, are easily distinguished from *capitalis* by their uniformly dark color on the top of the head and neck, and probably represent another race separable from true *leucophrys*.

Catharus occidentalis fulvescens, new subspecies. TABLE-
LAND THRUSH.

Type, No. 142436, U. S. Nat. Museum, Dept. Agric. coll., ♂, Amecameca, Mexico, February 1, 1893. Collected by E. W. Nelson (Orig. No. 764).

Distribution.—The heavy oak forests of the mountain slopes on the southern end of the Mexican table-lands. Our collection contains specimens from Amecameca, Huitzilac, Ajusco, Volcano of Toluca, El Chico, the Volcano of Orizaba and the Sierra Madre near Chilpancingo, Guerrero.

Catharus occidentalis fulvescens is a form of the table-land mountains and, contrasted with typical *occidentalis*, it is lighter rufous on the crown and the color of the entire dorsal surface is a lighter and more fulvous brown and the ventral surface is much lighter colored. The two forms agree in size. The difference in coloration is quite in line with what would be expected, since the slopes of Mt. Zempoaltepec, whence came the type of *occidentalis*, are very damp and subject to long continued fogs and misty storms. On the other hand the lighter and brighter colored *fulvescens* lives in the drier, clearer climate of the table-lands.

Six birds obtained by us near the type locality agree in being very dark, approaching *C. frantzii* of Central America.

Merula tamaulipensis, new species. TAMAULIPAS ROBIN.

Type, No. 142510, U. S. Nat. Museum, Dept. Agric. coll., ♀, Ciudad, Victoria, Tamaulipas, Mexico, March 27, 1891. Collected by Wm. Lloyd.

Distribution.—The only known specimen was taken near the capital of the State of Tamaulipas.

Description.—Similar to *M. grayi* in size and general characters, but spurious primary broader and more bluntly rounded; entire dorsal surface including top of head and exposed surfaces of folded wings and tail plain, dull, buffy olivaceous, nearly uniform and lacking the deeper buff that gives a warmer tone to the same surface of *grayi*; sides of head and neck like the back; chin and throat whitish, streaked with dark shaft-lines and very faintly washed with pale brownish. This light, streaked, throat area is larger and more marked than in *grayi*. The sides of the breast are olive brown shading into a light pectoral band of the same color which shades insensibly into the very pale buffy whitish of the abdomen. The flanks are more intensely buffy than the abdomen; the

lower tail-coverts are like the belly. The paler, duller color of the lower surface serves to distinguish this species at once from the more richly colored *grayi*.

It is closely related to *M. grayi* which it probably replaces in the region where it occurs. This supposition is based upon the fact that among the considerable series of *grayi* before me from various parts of Mexico not one is from the State of Tamaulipas, while the present species is unrepresented among the considerable series of that bird from the neighboring State of Vera Cruz.

DESCRIPTION OF A NEW SUBSPECIES OF *DENDROICA*.

BY HARRY C. OBERHOLSER.

A RECENT careful examination of the series of Yellow Warblers contained in the United States National Museum has revealed the existence of a well-defined geographical race of *Dendroica aestiva*, which has hitherto been recognized only in synonymy. The subspecies in question should, therefore, now be known as

***Dendroica aestiva rubiginosa* (Pallas), subsp. restit.**

ALASKAN YELLOW WARBLER.

Motacilla rubiginosa PALLAS, Zoogr. Rosso-Asiat. I, (1811?) 1831, 496.¹

CHARS SUBSP. — *D. aestivae* morcomo sat similis, sed corpore supra olivaceo-viridi obscuriore fere unicolore, vertice et uropygio vix flavescenti-

¹ All other of the numerous synonyms of *Dendroica aestiva* apply with reasonable certainty to the eastern form. The bird which Pallas described (*l. c.*) was from Kadiak Island, Alaska, and is fairly well characterized in his diagnosis, the essential portions of which are herewith presented, italicized as in the original:

“*Motacilla rubiginosa.*

M. flavissima, . . . pectori lituris longitudinalibus rufis, rectricibus flavis fusco marginatis. Vibrissae narium et *frons* ad medium usque verticem, lateraque capitis et *subtus* avis tota citreo-flava; frons virescenti nebulosa. . . . Cervix cum *dorso* uropygioque virescit.”

oribus; auricularibus, colli capitisque lateribus magis olivaceo-viridi lavatis; necnon remigibus cum alarum tectricibus superioribus minus conspicue flavido marginatis.

Al., 61.5-65.3 (63) mm; caud., 43.2-47.2 (44.4) mm.; exp. culm., 9.4-10.4 (9.9) mm; tars., 17.3-19.3 (18.3) mm.

HABITAT. — Alaska et Columbia Britannica.

DESCRIPTION. — Male, adult, No. 131807 U. S. Nat. Mus.; Kadiak Island, Alaska, June 7, 1893; C. H. Townsend. Above olive green, somewhat more yellowish on crown, auriculars, rump and sides of neck, but with no well-defined yellow crown-patch. Longest feathers of the superior tail-coverts with central portions olive brown. Lores, orbital ring, conspicuous superciliary stripe and lower parts, pure gamboge yellow, slightly shaded with olive green on sides, which, together with jugulum and breast, are streaked with brick red as in *morcomi*. Wings dark olive brown, the lesser coverts like the back, the median, greater and primary coverts, with outer margins of remiges, edged with yellowish olive green; the inner margins of the last broadly canary yellow at base, this color decreasing in amount toward the ends of the feathers. Axillars and under wing-coverts lemon yellow. Tail-feathers dark olive brown, the inner webs broadly lemon yellow, this color on the outer pair occupying all but a terminal guttate spot, and diminishing in extent on each succeeding pair, until it disappears entirely from the two middle rectrices; basal two-thirds of external web of outermost pair also lemon yellow. Outer edges of all the rest, including both margins of two middle feathers, narrowly olive green.

Typical *Dendroica aestiva rubiginosa* differs from *D. æ. morcomi* most noticeably in its darker, less yellowish and almost uniform upper parts, the crown and rump being not in appreciable contrast to the olive green of the back. In consequence of the olivaceous color of the whole pileum, both the yellow eye-ring and superciliary stripe are much more clearly indicated. Minor characters exist in the more olivaceous tint of the auriculars and sides of the neck and head; also in the duller, sometimes scarcely yellowish external edging to wing-quills and their coverts. The color below averages slightly paler, especially on the throat and the lower tail-coverts, though upon examination of a larger series this may prove merely an individual variation. There seems to be no material difference in size. From *Dendroica aestiva* the present form is further separable by the narrower streaking of the breast.

The characters here ascribed to *rubiginosa* are remarkably constant in all of the six adult males from Alaska, though a specimen

from Nushagak (U. S. N. M. No. 86517), and one from the Yukon River (U. S. N. M. No. 54425) are very slightly more yellowish above than the birds from Kadiak (the type locality), and have also the wing edgings somewhat brighter; but these aberrant features are apparently of quite trivial importance. Of three breeding birds from Victoria, British Columbia, two have a fairly well-marked yellow crown-patch, though this is somewhat obscured by olive-green tips to the feathers; but all three specimens are fully as dark above, and in every other respect so much like *rubiginosa* that they are without hesitation referred to this form.

Summer birds from Great Slave Lake (Fort Resolution and Fort Rae) are, however, quite typical of *D. æ. morcomi*; as are also specimens from northern California (Baird and Red Bluff), and one example from Fort Steilacoom, Washington (U. S. N. M. No. 7643). It thus would seem to be indicated that the breeding range of *rubiginosa* is almost, if not entirely, confined to Alaska and British Columbia.

Three Yellow Warblers collected by Dr. Edgar A. Mearns at Mountain Spring, San Diego County, California, May 11, 1894, though rather more yellowish above than average Alaskan specimens, are closely matched by the birds from British Columbia, and are with little doubt referable to *rubiginosa*. A spring specimen from San Antonio, Texas, taken May 3, 1889 (U. S. N. M. No. 152396), and one collected by Mr. Richmond on the Escondido River, Nicaragua, May 5, 1882 (U. S. N. M. No. 128416), are equally similar, and both belong apparently to the race at present under consideration.

Among the 53 North American specimens of *Dendroica æstiva* and *Dendroica æ. morcomi* which have been examined in this connection, there are but three, with regard to whose identity, so far as *rubiginosa* is concerned, any uncertainty might exist. One of these three examples is from Wheatland, Indiana, and approaches the Alaskan race by reason of its almost uniform coloration above, but the olive green portions of its plumage are, upon comparison, seen to be much more suffused with yellowish than in *rubiginosa*, thus leaving no question of its correct identification with *D. æstiva*. The two other aberrant specimens are from Calais, Maine, and Moose Fort, Ontario, respectively: and while in slight details

rather more yellowish than average Alaskan birds, they are still with some difficulty to be distinguished from *rubiginosa*, but nevertheless are perhaps best considered as *D. æstiva*.

The above remarks are, of course, based entirely upon adult males, as the females and young of *rubiginosa*, from Alaska, are apparently not certainly separable from corresponding plumages of *morcomi*, though there are not at hand sufficient specimens with sex and age properly determined, to permit a perfectly satisfactory disposition of this point.

The writer desires to express his indebtedness to Mr. Robert Ridgway for kind permission to make use of the specimens in the National collection; and to Dr. Edgar A. Mearns for the privilege of examining the Yellow Warblers collected by the naturalists of the recent International Boundary Commission.

Detailed measurements of *Dendroica æstiva rubiginosa* are given below.

MEASUREMENTS OF BREEDING SPECIMENS OF *Dendroica æstiva rubiginosa*.

U. S. N. M. No.	Sex.	Locality.	Wing.	Tail.	Exposed Culmen.	Tarsus.	Middle Toe with Claw.
131807	♂	Kadiak Island, Alaska.	65.3	44.2	9.7	19.3	14.5
70106	♂	" " "	64.	45.	9.4	18.3	15.2
54429	♂	" " "	62.7	47.2	10.2	18.5	15.
27267	♂	Yukon R., mouth of Porcupine R., Alaska.	62.2	44.5	9.7	19.	14.7
86517	♂	Nushagak, Alaska.	63.5	43.7	9.9	17.3	14.2
54425	♂	Yukon River, Alaska.	61.5	43.2	9.7	17.8	13.5
153279	♂	Victoria, Brit. Columbia.	63.5	43.9	10.4	17.8	14.7
153280	♂	" " "	62.2	44.2	9.9	18.5	14.5
153278	♂	" " "	62.2	43.7	10.2	17.8	14.2
Average.			63.	44.4	9.9	18.3	14.5

ON THE NOMENCLATURE OF CERTAIN FORMS OF
THE DOWNY WOODPECKER (*DRYOBATES*
PUBESCENS).

BY WILLIAM BREWSTER.

IN accordance with a wish expressed by the Committee on Classification and Nomenclature at its meeting in Cambridge on November 13, 1896, I have investigated certain matters of synonymy suggested by a recent article on the Downy Woodpecker by Mr. Oberholser,¹ who proposes to separate this bird into three geographical races of which *Dryobates pubescens meridionalis*, a small, brownish-breasted form inhabits the "South Atlantic and Gulf States, from South Carolina to Texas" and *Dryobates pubescens nelsoni*, a large and relatively white form, "Alaska and Northern British America"; the bird intermediate in respect to size and coloring and occupying the region lying between the areas just mentioned being considered as representing *Dryobates pubescens verus*.

A similar division was made by Swainson in 1831, in the 'Fauna Boreali-Americana' (Part Second, p. 308), but Swainson applied the name *pubescens* to the Downy Woodpecker of British North America and renamed as a distinct species the bird which "inhabits the middle parts of North America," and that found in "Georgia" calling the former "*Picus (Dendrocopus) medianus*, the Little Midland Woodpecker" (type locality New Jersey), and the latter "*Picus (Dendrocopus) meridionalis*, the Little Georgian Woodpecker" (type locality Georgia). Mr. Oberholser of course credits the name *meridionalis* to Swainson, with an appropriate reference to the 'Fauna Boreali-Americana', but he makes no allusion to Swainson's treatment of the other two forms, nor does he give his reasons for restricting the name *pubescens* to the midland bird. In the synonymy of *Dryobates pubescens meridionalis*, however, he cites "*Picus pubescens*, Linnæus, Syst. Nat., Ed. 12, 1766, I, 175 (*part*)", the insertion of the final word in parenthesis indicating that he regards this name as only in part applicable to the southern race.

¹ Proc. U. S. Nat. Mus., Vol. XVIII, No. 1080, pp. 547-550.

Linnæus based his *Picus pubescens* on Catesby and Brisson. There can be no doubt as to Catesby's bird, for that author says distinctly in his introduction that the collections on which his work was based were all made either in "the inhabited Parts of *Carolina*" which "extend West from the Sea about 60 Miles" or "at and about *Fort Moore*, a small Fortress on the Banks of the River *Savanna*, which runs from thence a Course of 300 Miles down to the Sea, and is about the same Distance from its Source, in the Mountains." The whole of this region, of course, is included in the range of *meridionalis* and Swainson's type of that form came from the neighboring State of Georgia.

Brisson gives a detailed description, evidently drawn from a specimen in hand, but he does not mention from whence his bird came. As he is ordinarily careful to state not only the locality but the collector's name, it seems probable that in this instance he had no definite knowledge on either point, and that his statement "on les trouve en *Virginie & à la Caroline*" was made largely on the authority of Catesby, whom he cites in his synonymy and whose work he appears to think related to Virginia as well as to the Carolinas. He also cites Klein but this author's *Picus varius minimus*¹ was based wholly on Catesby.

Mr. Oberholser says that the Downy Woodpeckers which he has examined "from North Carolina . . . and extreme Southern Virginia, appear to be intermediate between *D. pubescens meridionalis* and *D. pubescens*; and these, although not above included, are perhaps without impropriety referable to *D. pubescens meridionalis*." If Brisson's bird really came from Virginia it was probably taken somewhere not far from the coast and in the southern part of the State. Its measurements favor this hypothesis, for they indicate an exceptionally small bird of even the southern form. It is impossible, however, to ascertain definitely from whence this specimen was derived. It may have been taken almost anywhere in eastern North America—in Canada, for instance, where many of Brisson's birds were obtained.

These facts and considerations have led me to conclude that Mr. Oberholser's position is not tenable, and that if the separation

¹ *Historiæ Avium Prodomus*, 1750, p. 27.

which he advocates be deemed advisable, we should regard the Southern Downy Woodpecker as the true *Dryobates pubescens* (Linn.), calling the bird of the middle region *Dryobates pubescens medianus* (Sw.) and that of northern British America *Dryobates pubescens nelsoni* Oberholser. The alternative would be to adopt Swainson's arrangement *in toto*, for if not applicable to the southern form the name *pubescens* is subspecifically indeterminate and Swainson was within his rights in restricting it to the Downy Woodpecker of the far north and in bestowing new names on the other two birds.

FOURTEENTH CONGRESS OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE FOURTEENTH CONGRESS of the American Ornithologists' Union convened in Cambridge, Mass., Monday evening, November 9, 1896. The business meeting was held at the residence of Mr. Charles F. Batchelder. The public sessions, lasting three days, were held in the Nash Lecture-room of the University Museum, commencing Tuesday, November 10.

BUSINESS SESSION.—The meeting was called to order by the President, Mr. William Brewster. Thirteen Active Members were present. The Secretary's report gave* the membership of the Union at the opening of the present Congress as 673, constituted as follows: Active, 47; Honorary, 19; Corresponding, 67; Associate 540.

During the year the Union lost seventy-two members,—seven by death, fifteen by resignation, and fifty were dropped for non-payment of dues. The members lost by death were Henry Seebohm,¹ an Honorary Member, who died in London, England, November 26, 1895, aged 63 years; Dr. Juan Gundlach,² who died in Havana, Cuba, March 14, 1896, at the age of 85, also an

¹ For an obituary notice, see Auk, XIII, 1896, pp. 96-97.

² For an obituary notice, see *Ibid.*, p. 267.

Honorary Member; and Thomas Lyttleton,¹ Lord Lilford, late President of the British Ornithologists' Union, a Corresponding Member, who died at Lilford Hall, Oundle, Northamptonshire, England, June 17, 1896, aged 63 years. Also the following Associates: Dr. Willard L. Maris,² who died in Philadelphia, Dec. 11, 1895; Clarence A. Smith,³ who died in New York City, May 6, 1896, aged 22; Howard Gardiner Nichols,⁴ who died in Atlanta, Ga., June 23, 1896, aged 25; and Eugene C. Thurber,⁵ who died at Alhambra, Calif., September 6, 1896, aged 31.

The report of the Treasurer showed the finances of the Union to be in good condition.

The Amendments to the By-Laws proposed at the Thirteenth Congress were considered; part were adopted and part rejected.⁶

An election of officers was then held under the provisions of the change in the By-Laws making the Ex-Presidents of the Union Councillors. This required the election of three new members to the Council. The officers of the previous year were all re-elected with Mr. Chas. B. Cory, and Drs. Jonathan Dwight, Jr., and L. Stejneger as new members of the Council. Dr. Walter Faxon, of Cambridge, Mass., was elected an Active Member, and seventy-eight new members were added to the list of Associates. The usual reports of Standing Committees were received.

PUBLIC SESSION. *First Day.*—The meeting was called to order by the President, Mr. Brewster. An address of welcome was made by Dr. Geo. L. Goodale, on behalf of Harvard University.

Mr. William Dutcher, Chairman of the 'Committee on Protection of North American Birds,' then read the report of his committee for the past year. The report is published in full in this number of 'The Auk' (pp. 21-32), and will be reprinted as a separate pamphlet.

¹ For an obituary notice, see *Auk*, XIII, p. 348.

² For an obituary notice, see *Ibid.*, p. 193.

³ For an obituary notice, see *Ibid.*, pp. 267-268.

⁴ For an obituary notice, see *Ibid.*, XIV, Jan. 1897, under 'Notes and News.'

⁵ For an obituary notice, see *Ibid.*, XIII, p. 349.

⁶ See under the department of 'Notes and News' in the present number of 'The Auk.'

The Union was honored by the presence of Miss Maria R. Audubon, granddaughter of the renowned naturalist. In her behalf Dr. Elliott Coues exhibited some recently discovered manuscript journals of John James Audubon, including the one giving an account of his famous trip up the Missouri River. A vote of thanks was tendered Miss Audubon for her kindness in allowing the manuscripts to be seen.

Under the title 'Ornithological Publications, Present and Prospective,' Dr. Coues laid before the Union an advance copy of 'Papers presented to the World's Congress on Ornithology,' of which he was the responsible editor. He also stated that he was engaged in the preparation of a new edition of his 'Key to North American Birds,' and in conjunction with a well known author was writing a bird-book for beginners.

Mr. Louis Agassiz Fuertes exhibited and explained a collection of his own unpublished drawings of birds, made from life.

The opening paper of the afternoon session was by Mr. Frank M. Chapman, entitled 'An Ornithological Tour in Yucatan.' The members and visitors repaired to the Geological Room of the University Museum where lantern slides illustrating this paper were shown.

The second title was 'Some New England Birds' Nests,' by Mr. William Brewster. He illustrated his paper with lantern slides from original photographs. Remarks followed by Messrs. Chapman, Bent, Chamberlain, Clark, Batchelder, and Rev. H. K. Job.

Second Day.—The meeting was called to order by the President, Mr. Brewster.

The reading of scientific papers began with one by Dr. Jonathan Dwight, Jr., on 'The Philadelphia Vireo (*Vireo philadelphicus*).’ Remarks followed by Mr. Bradford Torrey, Dr. Coues, the Chair, and the author.

The next paper was by the same author on 'The Molt of the Song Sparrow (*Melospiza fasciata*), and of the Red-eyed Vireo (*Vireo olivaceus*).’ Remarks followed by Messrs. F. H. Kennard, Frank M. Chapman, the Chair, and the author.

The third title of the morning was 'Notes on the Black Rail (*Porzana jamaicensis*) in Southern Connecticut,' by Judge John N. Clark. Remarks followed by Messrs. Torrey and Deane, the Chair, and the author.

Some bird-drawings, the work of Mr. Ernest E. Thompson, were shown by Mr. Frank M. Chapman.

A vote of thanks was given Mr. Dutcher for the admirable manner in which his accounts with the Union had been kept during his long service as Treasurer.

The feature of the afternoon session was the open-air talk by Mr. Abbott H. Thayer, demonstrating his theory of the principles of protective coloration. Mr. Thayer placed three sweet potatoes, or objects of corresponding shape and size, horizontally on a wire a few inches above the ground. They were covered with some sticky material, and dry earth from the road on which they stood was sprinkled over them so that they would be the same color as the background. The two end ones were then painted white on the under side, and the white color was shaded up and gradually mixed with the brown of the sides. When viewed from a little distance these two end ones, which were white below, disappeared from sight, while the middle one stood out in strong relief and appeared much darker than it really was. Mr. Thayer explained that terrestrial birds and mammals which are protectively colored have the under parts white or very light in color, and that the color of the under parts usually shades gradually into that of the upper parts. This is essential in order to counteract the effect of the shadow, which otherwise, as shown by the middle potato, makes the object abnormally conspicuous and causes it to appear much darker than it really is. In the case of Mr. Thayer's experiment some of the witnesses could hardly believe that the striking difference in the visibility of the three potatoes was entirely due to the coloring of the under side, and Mr. Thayer was asked to color the middle one like the two others in order that the effect might be observed. Mr. Thayer complied with the request, painting the under side of the middle potato white, and shading the white up into the sides as in the case of the others. The effect was almost magical. The middle potato at once disappeared from view. A similar experiment was tried on the lawn. Two potatoes were painted green to resemble the green of the grass above which they were suspended. One was painted white on the under side and at once became invisible when viewed from a little distance, while the other showed plainly and seemed very dark, the shadow, superadded to the green of

the under side, making it remarkably conspicuous. The experiments were an overwhelming success. Discussion followed (in the Nash Lecture-room) by Drs. Merriam, Coues and Allen, Messrs. Phelps, Chapman and Fuertes, the Chair, and the author. The thanks of the Union were tendered Mr. Thayer.

Third Day.—The meeting was called to order by the President, Mr. Brewster. Before proceeding to the reading of papers, resolutions were adopted thanking Prof. Geo. L. Goodale, and the Geological Department of Harvard University for the use of their respective lecture-rooms for a place of meeting, and for other courtesies tendered to the Union; and to the Nuttall Ornithological Club for the cordial welcome and generous hospitalities extended to visiting members.

The first paper of the morning was by Dr. C. Hart Merriam, who spoke informally about some of the birds of Oregon.

Mr. Brewster then exhibited a series of Redpolls, and talked in an informal way about 'Two Curious Birds Nests.'

The opening paper of the afternoon was 'On the Terns of Penikese Island, Massachusetts,' by Geo. H. Mackay. It was read by Mr. Reginald Heber Howe, Jr. Remarks followed by Messrs. Fuertes, Dutcher, Howe, the Chair, and the author.

Mr. Edward H. Forbush, Field Director of the Massachusetts Gypsy Moth Commission, asked for information and suggestions regarding the advisability of introducing into the United States foreign birds that feed upon the eggs of the gypsy moth. It was the opinion of those who discussed the matter that such a scheme would be impracticable.

Owing to the lack of time for their presentation in full the following papers were read by title.

'The Fringillidæ of Dodge County, Wisconsin,' by Will Edwin Snyder.

'Some Notes on the Nesting Habits of the White-tailed Kite (*Elanus leucurus*). With exhibition of eggs,' by Chester Barlow.

'On the Terns of Muskeget Island, Massachusetts,' by George H. Mackay.

The Union then adjourned to meet at the American Museum of Natural History, New York City, November 8, 1897.

[NO. H. SAGE, *Secretary*.

Portland, Conn., Nov. 30, 1896.

GENERAL NOTES.

The Nostrils in Young Cormorants.—Through the kindness of Mr. R. C. McGregor and Mr. Curtis Clay Young I have come into the possession of a considerable series of crania of Cormorants, from a very early stage of incubation up to the twenty-eighth day after hatching. In the oldest of these skulls the external nostrils are still open, and the bones of the palate have not coalesced, and the probabilities are, as already stated, that the external nostrils close about the time the young Cormorants take to the water and begin to feed themselves.—F. A. LUCAS, *Washington, D. C.*

Labrador Duck.—In the Museum at Amiens in France, which is located in a temporary and very unworthy building by the river, I was surprised to come across a fine adult male Labrador Duck, *Camptolaimus labradorius*, in good preservation. It was unknown to Mr. William Dutcher when revising the list of extant specimens (Auk, 1891, p. 201), but I conclude that it is probably one of the specimens which he mentions to have been sent to Europe by Mr. John Akhurst prior to 1850 (*op. cit.*, 1893, p. 270).—J. H. GURNEY, *Keswick Hall, Norwich, England.*

Nesting of the Larger White-cheeked Goose (*Branta canadensis occidentalis*) in Okanogan Co., Wash.—In May, 1896, a nest of this species was located in the gorge of the Columbia River due east of Chelan. A visit paid to it on May 13 led me through a wild stretch where the cliffs press in upon the swirling river. I began to walk softly over a rocky point which projected over the stream at about fifty feet above high-water mark. I had seen a Goose push out from the shore below and hoped his mate might be on the nest. I was not to be disappointed, for as I rose over the crest of the rocky point the mother Goose flew off with a loud squawk, and I had in addition a vision of something green flying through the air. In a shelf of rock commanding the river below three green goslings, newly hatched, were resting on a bed of down. Pale green egg shells were lying about the nest as a reminder of what might have been. The green thing "flying through the air" proved to be a fourth gosling which Mother Goose had knocked off the nest in her haste, but I rescued him from a cleft in the rock twenty feet below, where he had been fortunately caught before striking the fierce current of the river, and returned him apparently none the worse for his tumble. The nestlings were in general of a bright grass-green color mottled with a shade of olive. The nest was entirely composed of soft down from the Goose's breast.

The Larger White-cheeked Geese are the first birds to arrive in the Chelan valley in February, and they leave the wheat fields, reluctantly enough, in December. Their breeding in the county seems to be alto-

gether by detached pairs, although in some places where unusually abundant they gather daily for a sociable feed. — WILLIAM L. DAWSON, *Oberlin, Ohio.*

A New Bird for the Virginias.— I have lately received from Mr. Thaddeus Surber, White Sulphur Springs, West Virginia, a young male specimen of the Stilt Sandpiper (*Micropalama himantopus*) which was taken on November 2, 1896, near Caldwell, P. O., on the Greenbrier River, six miles from the above mentioned Springs. This species has not hitherto been reported from either Virginia or West Virginia, although a bird from the Patuxent River, Md., has been recorded by Mr. Hugh M. Smith (Auk, Vol. III, p. 139). — WILLIAM C. RIVES, M. D., *New York City.*

Asarcia spinosa.— In Vol. XXIV of the British Museum Catalogue of Birds, Limicolæ, p. 86, 1896, Dr. Sharpe names a genus *Asarcia*, type *Parra variabilis* Linn., 1766, as distinguished from *Jacana* proper by the reduction of the facial appendages to a comparatively small frontal leaf, which is trifid, somewhat like a fleur-de-lis; the same cutaneous excrescence in the type of *Jacana* being bifid or heart-shaped, and supplemented by a pair of wattles. Assuming the generic sufficiency of this distinction, I may remark that Dr. Sharpe's use of the specific term *variabilis* in this connection is at variance with A. O. U. canons of nomenclature. As shown by Elliot, Auk, July, 1888, p. 298, and as admitted by Sharpe, *l. c.*, *Parra variabilis* Linn., S. N. 1766, p. 260, was based on Edwards's Nat. Hist. I. 1743, p. and pl. 48, as a mere renaming of *Fulica spinosa* Linn. S. N. 1758, p. 152, which had the identical basis of Edwards's pl. 48. Consequently *variabilis* is untenable by our rules, and the species should continue to stand as *Jacana spinosa*, unless we recognize the new generic name; in which probable contingency *Asarcia spinosa* becomes the onym of the bird. — ELLIOTT COUES, *Washington, D. C.*

The Passenger Pigeon (*Ectopistes migratorius*) in Lewis County, N. Y.— In the Boonville (N. Y.) 'Herald' of May 27, 1896, appeared an item to the effect that Mr. Henry Felshaw had recently seen "a large flock of Wild Pigeons, perhaps 300 in number, flying westward." On writing to Mr. Felshaw he replied that there was no possibility of his having been mistaken, as he had shot, trapped and netted thousands of these birds, in former years, and the flock in question was seen when not more than fifteen rods distant. The flock, as said, numbered about 300, and was seen at about 5.30 A. M. on May 22, the locality being Constableville, Lewis County, N. Y. He further states, "I mounted, last spring (in April, I think) a cock Pigeon that was shot somewhere near North Western." — W. S. JOHNSON, *Boonville, N. Y.*

Melopelia leucoptera in Osceola County, Florida.— The National Museum has recently received a wing and foot of this species from Prof. W.

B. Hinton, of Kissimmee, Florida, Superintendent of Schools for Osceola County, who, under date of November 16, 1896, gives the following information concerning it.

"Mr. J. R. Graves, proprietor of the 'Lake House,' purchased some Quail a few days ago from a young fellow from the country, and among the Quail was this Dove. Knowing my fondness for birds he gave me the Dove. It was put in a coop (6 X 9 ft.) with some Carolina Doves and some Quail, where it seemed to be contented for two or three days, eating wheat and corn grits with as much relish as would a cooped chicken. But something frightened it from its roost night before last and it killed itself by flying against the woven wire with which the coop is covered. The astonishing thing is the velocity with which the bird flies, even at the moment it springs into the air. The coop mentioned is only four feet tall; yet this Dove struck the wire with such force as almost to strip one of its wings from its body, exposing, also, its windpipe completely."

So far as I am aware, this species has never before been observed so far north in Florida, where, even much farther south, its occurrence seems to be exceedingly rare.—ROBERT RIDGWAY, *Washington, D. C.*

The California Vulture in Alberta.—On the 10th of September last (1896) I saw between Calgary and the Rocky Mountains two fine specimens of the California Vulture, *Pseudogryphus californianus*. I was not aware that this bird was found east of the Rocky Mountains, or so far north as the point above mentioned.—J. FANNIN, *Provincial Museum, Victoria, B. C.*

Golden Eagle (*Aquila chrysaetos*) taken near New Haven, Conn.—I have a fine Golden Eagle, killed in Woodbridge, within five miles of New Haven, about Oct. 1, 1896. I received it in the flesh the next day after it was killed. It was eating a Red-tailed Hawk when killed, and we took portions of the Hawk from its crop. It was a female, in fine plumage.—A. E. VERRILL, *New Haven, Conn.*

Abundance of Owls on the Coast of British Columbia.—Never in the history of my observations, which covers a period of thirty years, has there been such a gathering of Owls on the coast of British Columbia as that which has taken place this fall. The gathering is represented by the following species: Dusky Horned Owl (*Bubo virginianus saturatus*), Snowy Owl (*Nyctea nyctea*), Kennicott's Screech Owl (*Megascops asio kennicottii*), and the California Pygmy Owl (*Glaucidium gnoma californicum*).

They have literally invaded the land, and the two first mentioned species are playing havoc with chickens, turkeys, quail, in fact anything they can lay their claws on. The extreme cold weather reported in the North is probably the cause of this migration.—J. FANNIN, *Provincial Museum, Victoria, B. C.*

The Cuculidæ of the A. O. U. List.—I am sorry to perceive that our treatment of this family involves several errors. One of these is a mere blunder, almost self-corrective; another is a grammatical mistake, easily set right; but two others are ornithological improprieties of considerable taxonomic consequence.

1. *Cuculus canorus telephonus* appears as a member of the "Subfamily Coccyzinæ, American Cuckoos," which of course it is not. This is a mere editorial inadvertency, or mechanical defect in the make-up of the List, by omission of a heading "Subfamily Cuculinæ" to cover this case. The 'break' is obvious, and easily mended.

2. "*Coccyzinæ*" appears as the name of the American subfamily. This should be *Coccyzinæ*, of course, as derived from the name of the genus *Coccyzus*. I am well aware that the form *Coccyzinæ* is used by many writers, including myself; it has so stood in the 'Key' since 1884 after Baird, Cabanis, and others, who alter *Coccyzus* of Vieillot into *Coccygus*. But those who preserve the original orthography of names, however faulty, must write *Coccyzus* and consequently *Coccyzinæ*, as I did in the orig. ed. of the 'Key', 1872. (This criticism does not reach our use of *Coccyges* as a subordinal term, for the latter is independently formed direct from the Greek κόκυξ, a cuckoo, not from any generic name.) I am happy to be able to defend Vieillot's *Coccyzus* on good linguistic grounds; for it is derivable direct from the classic Greek verb κόκυξαι, "I cry 'cuckoo.'" We are therefore philologically justified, as well as canonically correct, in using *Coccyzus* and *Coccyzinæ*. I may remark, in passing, the quite gratuitous changes which have been rung upon *Coccygus*, namely: *Coccyzon*, *Coccygius*, *Coccyssus*, *Coccygus*, *Coccyzins*, *Coccygon*, *Coccyua*, *Coccyzæa*, and probably yet other forms, all of them superfluous and supererogatory.

3. *Coccyzinæ*. As to the necessity or expediency of recognizing for the American Tree Cuckoos any subfamily apart from Old World *Cuculinæ*, there may easily be two opinions. I have kept them apart in all my works, but am coming to the conclusion that they can hardly be so considered, if we duly regard the various interrelations of genera in the whole family *Cuculidæ*. The strongest character I have seen ascribed to the American forms is that adduced by Beddard, P. Z. S. 1885, p. 187, who finds the ventral pteryla double at its commencement in *Coccyzus*, *Piaya*, *Saurothera*, and perhaps *Diplopterus*, it being there single in *Cuculus*, etc. But even Beddard brings all these forms under one subfamily, *Cuculinæ*; and Shelley, Cat. B. Brit. Mus., XIX, 1891, p. 211, finds no supergeneric difference between *Coccyzus* and *Cuculus*, though he recognizes altogether no fewer than six subfamilies of *Cuculidæ*. I should wish to be better informed than I am before pronouncing upon this case without reserve; but my present impression is, that *Coccyzinæ* must be abandoned as a subfamily, and merged in *Cuculinæ*, substantially according to Beddard's views.

4. *Neomorphinae*. However the doubt just expressed regarding *Coccyzina* be finally resolved, there is no question that we must recognize for the group of which *Geococcyx* is a shining example a subfamily apart from *Coccyzinae* (or *Cuculinae*) on the one hand, and from *Crotophaginae* on the other. This is the group of American Ground Cuckoos which I have for many years been calling *Saurotherinae*; but it now appears that the genus *Saurothera* does not belong to it, and that its proper name is *Neomorphinae*, derived from the name of that genus (*Neomorphus* GLOGER, 1827) which has priority over all the others which belong to this subfamily. The *Neomorphinae* are a well-marked if not yet precisely limited group, much more nearly related to the *Crotophaginae* than to any other. Thus, they possess the accessory femorocaudal muscle, which is present in none of the *Cuculinae* (or *Coccyginae*); and the ventral pterygia of each side is furcate. In these respects the *Neomorphinae*, so characteristic of America, agree with the Old World *Centropodinae* but differ therefrom notably in some other characters. The *Neomorphinae* agree with the *Crotophaginae* in most respects, but differ in their pseudobronchial instead of truly bronchial syrinxes, and many other particulars. The *Neomorphinae* are Ground Cuckoos, with a certain gallinaceous suggestiveness, being more or less pheasant-like in external appearance; tail of 10 rectrices, as usual in the family (not 8, as in *Crotophaginae*), long and graduated, with elongated upper coverts (approaching *Diplopterus* and *Dromococcyx* in this respect); wings short, rounded, convex, with elongate inner secondaries (not long, flat, and pointed, as in *Cuculinae* or *Coccyzinae*); feet large and strong, in adaptation to terrestrial habits (as in *Centropus*, etc., but without any peculiarity of the hind claw). With the possible or probable exception of *Carpococcyx*, which is brought under *Neomorphinae* by Shelley, though it inhabits Borneo, and is therefore unintelligible as a member of this subfamily, if it be really such, the present subfamily is exclusively American. The genera which certainly compose it are *Neomorphus*, *Geococcyx*, and *Morococcyx*; very likely *Diplopterus* and *Dromococcyx* might without violence be brought under the same head. But until we know more of the structural characters of the two last named genera, as well as of *Saurothera*, *Piaya*, and *Hyetornis*, it will hardly be safe to pronounce upon these Neotropical forms.

The times may not yet be ripe enough to do away with all the uncertainty attending the division of *Cuculida*; but what I regard as established is, that the A. O. U. List contains representatives of at least three subfamilies: (1) CROTOPHAGINÆ. (2) NEOMORPHINÆ. (3) CUCULINÆ. The latter may or may not be warrantably divisible into *Coccyzinae* for the American genera *Coccyzus*, etc., and *Cuculinae* proper for our waif from Asia.—ELLIOTT COUES, *Washington, D. C.*

Broad-tailed Hummingbird in California.—I take pleasure in recording the capture of *Selasphorus platycercus*, ♂ ad., at Oakland, Cal., on May 8, 1890, the first taken in this State. On the same date an adult male of

Calypte costæ was also secured, which extends its recorded range somewhat to the north in California. A number of *Stellula calliope*, ♂♂, were collected in April, the result of a bird wave. These birds are in the mounted collection of Mr. Walter E. Bryant, who kindly furnished me these data.—RICHARD C. MCGREGOR, *Palo Alto, Cal.*

Authority for the Name *Myiarchus mexicanus*.—The A. O. U. List, 2d ed. 1895, No. 453, cites *Myiarchus mexicanus* Baird, B. N. A., 1858, p. 179, as the tenable name for the *Tyrannula mexicana* of Kaup, P. Z. S. 1851, p. 51. This is an error; for Baird's *M. mexicanus* of 1858 is *M. cinerascens*, as shown by the synonymy he adduces, the habitat he assigns, and the description he gives. Baird's *mexicanus* has also been almost universally considered a synonym of *cinerascens*, as by Dr. Sclater in many places; by myself in my monograph of *Myiarchus*, and in the 'Key,' 2d-4th eds., 1884-90; and such reference of his name is implied by Baird himself, Hist. N. A. Birds, II, 1874, p. 331, where "*Myiarchus mexicanus*, KAUP, LAWR." appears, to the exclusion of *M. mexicanus* Bd.

The A. O. U. List, 1st ed., 1886, No. 453, cites as authority for the name *Myiarchus mexicanus* Lawr. Ann. Lyc. N. Y., IX, May, 1869, p. 202. This is probably correct; for *M. mexicanus* Dresser, Ibis, 1865, p. 473, though referring to the Texas bird, is undoubtedly *cinerascens*, as indicated by the locality, San Antonio, where *cinerascens* is known to occur.—ELLIOTT COUES, *Washington, D. C.*

Hepburn's Leucosticte (*Leucosticte tephrocotis littoralis*) in Summer, in Okanogan County, Washington.—While engaged in exploring Wright's Peak (alt. 9,310 feet), in the high ranges west of Lake Chelan, our party made camp on a mountain shoulder at the foot of a glacier, at an elevation of about 8,000 feet. Here amidst the ice and snow was to be seen a pair of the Leucostictes feeding their brood of full grown young. On account of their rosy, warm coats they seemed utterly disregarding of the bitter winds, and flitted freely from point to point on the morainic piles or hopped about on the snow. The parent birds appeared to forage two or three thousand feet down the mountain side — there was nothing above but rock — and when they appeared over the edge of the mountain wall, in returning from their excursions, the young would set up an eager clamor. The ashy hood to be seen in the adult birds was entirely absent in the young. Otherwise there was no marked difference in appearance at a slight distance. The birds were observed Aug. 5 to 8, 1896.—WILLIAM L. DAWSON, *Oberlin, Ohio.*

Ammodramus (*Passerculus*) sanctorum.—This bird is described in the 'Key,' 1884, 2d ed., p. 364, as *Passerculus sanctorum*, but has been ignored by the A. O. U., perhaps on account of my expressed doubt as to its validity. The type specimen, from San Benito Island in the Gulf of California, and another, also collected at the same time by Dr. T. H. Streets, U. S. N., are both in the Mus. Smiths. Inst. They were not in

good order, and did not furnish entirely satisfactory indications. But we now have a fine series from this identical island, showing the assigned specific characters to be valid; and the species has been promptly accepted by the A. O. U. Committee. I refrain from further remarks, not wishing to anticipate anything that Mr. A. W. Anthony, the rediscoverer of the species, may have to say on the subject.

While on the genus or subgenus *Passerculus*, I may note a possible nomenclatural question which seems incident to our reference of *Passerculus* to the genus *Ammodramus*. This gives us the name *A. savanna* for one species, and *A. savannarum* for another. As these two names are of course the same word, only differing in terminal inflection, it may be that both cannot stand in the same genus. If so, it becomes a particularly awkward and unlucky matter; for *savannarum* GM., 1788, after Latham, Brisson, and Sloane, for the Jamaican form of the Yellow-winged Sparrow, antedates *savanna* WILS., 1811, for the Savannah Sparrow, and thus the latter unhappy bird loses its claim to its most distinctive designation—the very one, too, that gives it its common English name. As I do not find any other subspecific name that has been applied to our familiar eastern form, this may require a new one. I am quite ready to sink *Coturniculus* in *Ammodramus*, but think we may well recognize *Passerculus* as a full genus. That would seem to be one way out of the present difficulty, but does not do away with the real trouble, which goes back to *Fringilla savanna* WILS. vs. *Fringilla savannarum* GM. Failing any other resource, our Eastern Savannah Sparrow may be called *Ammodramus* (*Passerculus*) *sandwichensis wilsonianus*.—ELLIOTT COUES, Washington, D. C.

Occurrence of Baird's Sparrow (*Ammodramus bairdii*) in Washington.—On the 5th of September, 1895, while residing at Chelan in Okanogan County, Washington, I first met this bird. Only one specimen was secured, but the birds were abundant on weedy bottom lands along the lower end of Lake Chelan. They kept for the most part pretty close to the ground, where they seemed to be feeding on a little wild bean. The migration was noted up to the 9th, when the last specimens were seen.

The return movement of spring was less noticeable. On the 29th of April, 1896, I came across perhaps a dozen Baird's Sparrows in the sagebrush of an upland pasture, mixing freely with *Zonotrichia leucophrys intermedia*. An elegant male, with yellow areas in maximum color, was taken from a willow clump by the water's edge on May 11.—WILLIAM L. DAWSON, Oberlin, Ohio.

Acadian Sparrow in Yates County, N. Y.—Oct. 7, 1896, I took a male Acadian Sparrow (*Ammodramus caudacutus subvirgatus*) and saw one more. The one I took was identified by Dr. Jonathan Dwight, Jr. I think there were more of them here, as the marsh grass was full of small Sparrows, but I was only sure of seeing two of the Acadian.—VERDI BURTCH, Penn Yan, N. Y.

Note on *Junco annectens* Baird and *J. ridgwayi* Mearns.—Although Professor Baird based his *Junco annectens* (Ornithology of California, I, 1870, p. 564) on several specimens representing the bird which we have been accustomed to call by that name and one example typical of *J. ridgwayi* Mearns (Auk, VII, July, 1890, p. 243), reference to these specimens and careful comparison with Prof. Baird's description show clearly that the rufous-backed specimen is the type of *J. annectens*. *Junco ridgwayi* Mearns, therefore, becomes a synonym of *J. annectens* Baird, and the other form (*J. annectens*, Auct. nec Baird) being without a name I take pleasure in bestowing upon it the name *Junco mearnsi*, in compliment to my friend, Dr. Edgar A. Mearns, U. S. A.

Junco mearnsi is similar to *J. annectens*, but may easily be distinguished by having the back hair brown, not conspicuously different in color from the gray of hind neck and rump, instead of being bright rusty or rufous, as in *J. caniceps*.

The type of *J. mearnsi* is No. 11164, U. S. Nat. Mus., ♂ ad., Fort Bridger, Wyoming, April 12, 1858; C. Drexler. The type of *J. annectens* is No. 10701, U. S. Nat. Mus., ♀ ad., Fort Bridger, May 28, 1858; C. Drexler.—ROBERT RIDGWAY, *Washington, D. C.*

Rectifications of Synonymy in the Genus *Junco*.—The *Junco hyemalis danbyi* which I described in the Nidologist, III, No. 2, Oct. 1895, p. 14, as a provisional new subspecies from the Black Hills, and named for Prof. Durward E. Danby, principal of the high school of Custer, S. D., proves to be simply the young of *J. aikenii*, the characteristic representative of the genus in the said region. The type specimen, lacking the white wing-bars of the adult, has lately been deposited in the U. S. National Museum. The naming of the supposed new form will prove to have been not entirely in vain if it serves to emphasize the fact that *J. aikenii* is so thoroughly distinct from *J. hyemalis* that it can be recognized at any age, apart from the presence of its supposed chief distinctive characters—the white wing-bars. These are wanting at first, in birds of the year, and first appear as two rows of white dots on the ends of the median and greater coverts, respectively; these dots enlarge to spots by degrees, and finally coalesce as complete bars. The bird could not be mistaken for *hyemalis* at any age; the 'aspect' in life, even at gunshot range, is distinctive; for one receives the impression of a large gray bird, more like *caniceps* than like *hyemalis*.

J. h. connectens of my 'Key', 2d-4th eds., 1884-90, p. 378, is a good subspecies which has been accidentally overlooked by the A. O. U. Committee on Classification and Nomenclature in preparing both the editions of our Check-List, 1886 and 1895. In fact it also escaped my own memory, until it was brought to mind by the description of *J. h. shufeldti* by Mr. Coale, in The Auk, IV, Oct. 1887, p. 330; since which time I have been intending to bring up the case for final readjustment, but have meanwhile been much preoccupied with other than ornithological affairs. Mr. Coale's

shufeldti of 1887 is my *connectens* of 1884, characterized in the 'Key' as intermediate between *hyemalis* proper and *oregonus* proper, and as occupying a range between the habitats of the two forms as now restricted—that is, the interior region at large, and especially the Rocky Mountain region. I remember characterizing this form hypothetically some twelve or fifteen years ago, at which time I picked out type-specimens from a lot of Juncos which I examined in the South Tower of the Smithsonian Institution, in the presence of Mr. Brewster, Dr. Allen, Mr. Ridgway and others; these type specimens belonged to Mr. Brewster's collection and one of them has just now been identified by the A. O. U. Committee with what we have been calling *shufeldti*. Thus the case is perfectly clear, and the subspecies rests securely upon the diagnosis given in the 'Key' in 1884. The requisite rectification of synonymy will be made in the next supplement to the last edition of our Check-List. I only regret that I have been so dilatory in bringing the case up.—ELLIOTT COUES, *Washington, D. C.*

Spiza americana near Kingston, New York.—The familiar song of this species attracted my attention as I was driving a few miles from Kingston on June 5, 1896. The bird proved to be a full-plumaged male, but I was unable to secure him at the time or to return later to the same spot. The occurrence, however, of the species in the Hudson River Valley seems worthy of special mention.—JONATHAN DWIGHT, JR., M. D., *New York City.*

Correct Nomenclature of the Texas Cardinal.—Having very recently, for the first time, seen the original description of *Cardinalis sinuatus* Bonaparte, I was much surprised to find the locality given as "the western parts of Mexico." The name *sinuatus* belongs, therefore, in a restricted sense, to the form which I characterized, in 1887, as *Pyrrhuloxia sinuata beckhami*, under the erroneous supposition that Bonaparte's bird was the eastern form; consequently, the latter requires a subspecific name; and, being known in the vernacular as the Texas Cardinal, I propose for No. 594 of the Check-List the name *Pyrrhuloxia sinuata texana*, No. 594 a. being the true *P. sinuata*.—ROBERT RIDGWAY, *Washington, D. C.*

Natural Breeding Haunts of the Barn Swallow (*Chelidon erythrogaster*).—The Barn Swallow is such a familiar tenant of our barns and out-houses that it may not have occurred to many to wonder where they nested before man provided them with such resorts. During the summer of 1895, while visiting the headwaters of Lake Chelan, in Washington, I found the Swallows *at home*. The shores of the lake near its head are very precipitous, since the mountains rise here some 7,000 feet above the surface of the water. Along the shore line, in the side of the cliffs, which continue several hundred feet below the water, the waves have hol-

lowed out crannies and caves. In one of these latter, which penetrated the granite wall to a depth of some twenty feet, I found four or five Barn Swallows' nests, some containing young, and two, although it was so late in the season (July 9, 1895), contained eggs. Others were to be found in neighboring crannies outside the cave. Another visit paid to this spot on August 10 of this year (1896) discovered one nest still occupied, which contained four eggs. Although breeding thus in a perfectly primitive state there was no important difference observed in the birds' methods of construction. The nests were either affixed to the vertical walls of the cavern or else rested slightly on rocky knobs and projections. The feathery linings of the nests consisted of copious collections of the feathers of wild fowl, such as Ducks, Grouse, etc.

The only other place in Okanogan County where I recall having seen Barn Swallows was at Malott, some 60 miles distant, where the birds had adopted the manners of civilization and were breeding in a large barn.—
WILLIAM L. DAWSON, *Oberlin, Ohio.*

Characters of *Dendroica caerulescens cairnsi*.—Cairns's Warbler is named by me as a new subspecies in the work entitled: 'Papers Presented to the World's Congress on Ornithology,' pub. Chicago, Nov. 8, 1896, p. 138. It is a local race of the Black-throated Blue Warbler, breeding in the mountains of western North Carolina and eastern Tennessee, where the individuals arrive a week or ten days in advance of those that pass onward in their migration, and may be observed building and rearing their young while the migration in the same region is still going on. At the time I named the subspecies I had seen no specimens, but was satisfied that the bird could not have thus been localized for many generations without developing distinctive characteristics. At the recent meeting of the A. O. U. in Cambridge, I examined several specimens in the cabinet of Mr. William Brewster, collected by the late Mr. Cairns, and was pleased to find my prescience in the case confirmed upon comparison with a large series of the ordinary form from many different localities. The examination was made in company with Mr. Brewster, Dr. Allen, Mr. Chapman and others, who were immediately persuaded of the subspecific validity of the new form; and the Committee on Classification and Nomenclature at once voted unanimously to accept it. The bird is somewhat smaller than the average of *D. caerulescens*, and has the middle of the back nearly or quite black, instead of blue, or blue with only a few black touches. Some specimens in the large series were fortunately found to be intermediate, showing intergradation with the typical form, and thus relieving me from the necessity of recognizing *cairnsi* as a full species. The diagnosis of the new subspecies may be given as: ♂ *D. caerulescens* *simillima, sed minor, dorsoque medio nigro*. It is dedicated to its discoverer and original describer, Mr. John S. Cairns, of Weaverville, N. C., whose lamented death was recently noticed in these pages, and whose interesting article upon the summer home and nidification of the

bird occupies pp. 136-139 of the book named in the beginning of this note. The specimen which I have selected as the type of *cairnsi* is in Mr. Brewster's collection; it is a ♂, in full dress, and was collected by Mr. Cairns. — ELLIOTT COUES, *Washington, D. C.*

Dendroica cærulea vs. *Dendroica rara*. — *Sylvia cærulea* WILSON (Am. Orn. II, 1810, 141, etc.), the earliest name for the Cerulean Warbler, is unfortunately preoccupied by *Sylvia cærulea* LATHAM (Index Orn. II, 1790, 540), which is a synonym of *Polioptila cærulea* (LINN.); hence, No. 658, of the A. O. U. Check-List becomes *Dendroica rara* (WILSON) (*Sylvia rara*, WILSON, Am. Orn. III, 1811, 119, pl. 27, fig. 2). — ROBERT RIDGWAY, *Washington, D. C.*

Note on the Genus *Lucar* of Bartram.—The names given to many North American birds by William Bartram in his 'Travels,' orig. ed. 1791, are likely to raise nomenclatural questions until we come to some conclusion whether they are to be accepted or rejected. At present our usage wavers. The A. O. U. rejects most of his names, on the ground that he was not a strict binomialist; yet it accepts the term *Aphelocoma floridana* for the Jay named *Corvus floridanus* by Bartram, Trav., p. 291. Let us at least be consistent, if we cannot be just! With regard to generic names, if Bartram was not very orthodox in binomiality, neither was Brisson, whose heterodoxy in this particular does not prevent us from adopting his genera; and the jewel of consistency requires us to treat both these authors alike. On p. 290bis of this book Bartram names the genus *Lucar*, with formal indication of its type species, *L. lividus*. This brings the case distinctly within our rules regarding generic names, whether properly 'characterized' or not, and disposes of the apparent objection that it is a *nomen nudum*. For this bird is of course the well-known Catbird, Bartram's specific name of which is the obvious origin of *Turdus lividus*, Wilson, 1810. Bartram's *lividus* is antedated by *carolinensis* Linn., 1766; but his *Lucar* antedates *Galeoscoptes* Cab., 1850. As the Catbird is now removed from the genus *Mimus*, its only tenable name would appear to be *Lucar carolinensis* Coues, Pr. Phila. Acad., 1875, p. 349. — ELLIOTT COUES, *Washington, D. C.*

Breeding of the Carolina Wren (*Thryothorus ludovicianus*) on Long Island, N. Y.—On the 20th of March, 1896, I heard a Carolina Wren in a swamp near my home in Roslyn, Queen's Co., N. Y. Knowing it to be rare on Long Island I decided to watch it as closely as possible, hoping it might have a mate.

The village of Roslyn is situated at the head of Hempstead Harbor, and is shut in by hills on three sides. There are three ponds in the village, a few hundred feet apart, with swamp land between, and being in a row, one above the other, they divide the village in two parts. Between the highest pond and the second one is a swamp three or four acres in

area, where I first heard the Wren, and where he stayed most of the time for several weeks. Every day I could hear his *pickin' cherries, pickin' cherries, pickin' cherries, pickin'*, or *teàkettle, teàkettle, teàkettle*, or *whée-ha, whée-ha, whée-ha*, but the bird was very shy for a long time; in fact, till the nest was built. Starting from the swamp, he would make a complete circuit of the village every day, but apparently never left the valley.

Early in June I noticed that he seemed to stick to one locality most of the time, so I did a little exploring on his account, but could find no signs of a nest or a mate. The property on which the bird seemed to be located being occupied by people with whom I was not acquainted, I felt a little delicate about asking to go over the place more than once, so I asked Mr. Lewis H. West, who owns the place, to ask his tenants if they would not watch the Wren and try to find the nest. "Why, yes," they told him, "the birds have their nest in the roof of the well." This was about the 25th of June.

We found the nest in one corner of the roof of the well, about ten feet from the ground. The well is less than forty feet from the house, and is used daily. One of the birds left the nest when we went to see it, but stayed close by on a hemlock till we left.

I did not have a chance to visit the nest again till the 10th of July, when I found three young birds in the nest, well feathered. The mother bird was feeding them at the time, and was not at all shy, alighting on the lattice work around the well, with a small green worm in her bill, and waiting till we withdrew.

I did not keep track of the young birds after that, but heard the old ones nearly every day for a long time. On Nov. 3, I heard two calling to each other, one on the hill, one in the swamp. The last time I heard anything of them was Nov. 22.

There can be no possible doubt as to the identification of the bird, for Mr. West and I both were within six feet of them twice, and I have often watched them at short distances with a field-glass, while the song itself is a pretty safe guide with that bird.

I have good reason to believe that this is the first record of the actual breeding of the Carolina Wren on Long Island.—CHAS. E. CONKLIN, *Roslyn, Queen's Co., N. Y.*

A Remarkable Nest of the Tufted Titmouse (*Parus bicolor*).—On April 23, 1896, I noticed a Tufted Titmouse with its mouth full of building materials, and upon following it closely saw it fly into a very large mass of Spanish moss (*Tillandsia usneoides*). When it appeared again after depositing the nesting materials I was very much surprised to find that there was no hollow whatever where the moss was growing. It was followed by its mate, and made ten trips to the tree in less than fifteen minutes. Having had a good deal of experience with this species when nesting I knew it was characteristic of this bird to carry building materials to the nest even *after* the eggs were laid. I resolved to climb the tree

with assistance later in the day, but a violent rain storm prevented my doing so.

The next day, however, to my sorrow, I counted five eggs upon the ground and the nest completely blown out. Undismayed, she began work again in the same bunch of moss, but she was not encouraged at all by her mate, who would fly into a hollow near at hand and whistle for her, but she paid no attention to the hollow—just looked in and left. She worked rapidly and carried huge mouthfuls at every trip. Upon climbing to the nest on May 3 I found that it contained three eggs, and I left it for a full set. I was doomed to disappointment again, however, for the next day was very stormy, and upon visiting the tree I saw all the eggs on the ground and the nest, which was composed of dry leaves, hair, sedge, feathers and snake skins, was blown down in a mass. The fact of the Tufted Titmouse breeding in the Spanish moss is certainly a surprising departure for this bird.—ARTHUR T. WAYNE, *Mount Pleasant, South Carolina*.

The Whistled Call of *Parus atricapillus* common to both Sexes.—The well-known spring and summer call of the Chickadee, consisting of three clear whistles, is uttered by both sexes. I am not aware that record has ever been made of this fact, which I determined some time ago by the judicious use of firearms.—JONATHAN DWIGHT, JR., M. D., *New York City*.

***Passer domesticus* at Archer, Fla., and other Florida Notes.**—While collecting in Florida the past summer I killed a male *P. domesticus* at Archer on July 1. I can find no record of it having been recorded from this section before, and a number of persons to whom I showed the specimen said they had never seen one there before.

In sections of the State traveled over, where I have collected in previous years, I noticed a very perceptible falling off in the number of many of the large Waders. In Tampa Bay, however, I found the Roseate Spoonbill not uncommon, flocks of forty or fifty individuals being seen on two or three occasions, besides stragglers. I found them feeding in the boggy interiors of some of the mangrove islands and with a little caution was able to secure specimens.—T. GILBERT PEARSON, *Guilford College, N. C.*

Records of Two Birds rare on Long Island, N. Y.—*Contopus borealis*.—Giraud in his 'Birds of Long Island' makes no record of this species. Mr. William Dutcher in 'The Auk' (Vol. VI, p. 137), records the capture of the third specimen taken on Long Island (Aug. 11, 1888), two previous records having been made: one by Mr. N. T. Lawrence in 'Forest and Stream,' Vol. X, p. 235, and the other by Mr. DeL. Berier in 'Bull. Nutt. Orn. Club,' Vol. V, p. 46. A single specimen of *C. borealis* from Long Island is contained in the collection of the Long Island Historical Society.

This specimen was likewise recorded in 'The Auk' (Vol. X, p. 276), by Mr. Wm. Dutcher. I take pleasure in recording two additional specimens. Looking for fall migrants in the Parkville woods—now a part of Brooklyn—my attention was attracted by three or four birds, all apparently of the same species and evidently Flycatchers, in the tops of a scattered group of lofty old trees whose upper branches were dead and leafless. It at once occurred to me that these might be Olive-sided Flycatchers, though the extreme rarity of captures on Long Island was discouraging to the probability of a whole family presenting itself there at one time. In striking contrast to the familiar Kingbird, these birds were extremely shy. The least fearful of them was secured after some difficulty and proved to be a male Olive-sided Flycatcher of the year (date of capture, Aug. 29, 1896). September 1, three days later, in the same woods, a second specimen was taken. This bird was perched among the branches of a large tree which was in full foliage. This specimen was apparently alone, and exhibited none of the shyness which had made the previous capture difficult. This bird is also a male of the year, but measures longer by one half inch than the first.

Helmitherus vermivorus.—This Warbler is not a lover of Long Island's woods. Reaching the northern line of his breeding range at about this latitude, and evidently following regularly a route which does not cross Long Island, his occurrence here is doubtless an exception. A specimen of the Worm-eating Warbler of the year was secured within the present limits of Brooklyn on Sept. 16, 1896. This bird was feeding in company with other Warblers in a low shrubby growth within the borders of a wood. — WILLIAM C. BRAISLIN, *Brooklyn, N. Y.*

Unusual Visits of Birds in Western Massachusetts during 1896.—*Ammodramus sandwichensis savanna*.—A Savanna Sparrow was taken in Longmeadow the 8th of last February at a spot in the vicinity of which it had been repeatedly observed during the six preceding weeks. This is the first record of this species wintering near Springfield.

Agelaius phœniceus.—Close to the same place a small flock of Red-winged Blackbirds stayed from December until March.

Ulula cinerea.—A Great Gray Owl was captured in Blandford, March 4. This is the third of the kind known to have been taken in this county.

Mimus polyglottos.—For a few days during the last part of May a Mockingbird was observed in Ludlow.

Corvus ossifragus.—On the 9th of June a Fish Crow was taken in Springfield. This bird has often been reported as having been seen here, but this is the only instance where its presence has been proved by conclusive evidence.

Uria lomvia.—Two Brunnich's Murres were taken at different points near Springfield on Dec. 19. A heavy gale had just previously prevailed on the coast. — ROBERT O. MORRIS, *Springfield, Mass.*

The Michigan Ornithological Club.—The annual meeting of the Michigan Ornithological Club was held at the home of the Librarian, Mr. L. J. Cole, in Grand Rapids, on the afternoon and evening of December 11. Important business was transacted in the afternoon, and the evening was devoted to the presentation and discussion of papers.

The reports of the officers of last year showed the Club to be in a prosperous and growing condition. The treasurer reported a balance in the treasury. Prof. A. J. Cook, Dr. J. B. Steere, Dr. Morris Gibbs, and Mr. A. B. Covert were elected Honorary Members. Mr. L. D. Watkins, Manchester, was elected to Active, and Mr. Henry Roth, Ludington, Mrs. S. W. Clarkson, Ann Arbor, Mr. Geo. Walker, Belvidere, Ill., and Mr. E. W. Durfee, Lordsburg, New Mexico, to Associate membership.

Realizing the need of bringing the scattered members of the Club more closely in touch with one another, it was decided to commence the publication of a quarterly bulletin containing accounts of the meetings and other things of interest to members. The editorial staff is made up as follows: Editor-in-chief, S. Whitney Watkins, Manchester; associates, W. A. Davidson, Detroit, T. G. Hankinson, Michigan Agricultural College, Morrison A. Wood, Ann Arbor, business managers, W. E. Mulliken and S. J. Cole, Grand Rapids.

The following officers were elected for the ensuing year: President, A. B. Durfee, Grand Rapids, re-elected; Vice-president, W. A. Davidson, Detroit; Secretary, L. J. Cole, Grand Rapids; Treasurer, Mrs. F. A. Kelsey, Grosse Ile; Librarian, B. R. Laraway, Grand Rapids; Program Committee, B. W. Swales, Detroit; L. C. Read, Grand Rapids; C. M. Ayres, Sault Ste. Marie; Collection Committee, Prof. C. A. Whittemore, Grand Rapids; Percy Selous, Greenville, and H. F. Jones, Grand Rapids. It was decided to hold the next annual meeting at Lansing.

Evening session.—The first article, 'Concerning the English Sparrow,' by Percy Selous, was read by Mr. Mulliken in the absence of the author. Mr. Selous upheld the foreigner, but the general verdict of the members was against the bird. Mr. T. L. Hankinson presented a paper entitled 'The Progress of Ornithology in Michigan.' Mr. Hankinson began with the list of Sager in 1839 and carried the subject up to the list of A. J. Cook and the organization of the Michigan Ornithological Club. Mr. L. Whitney Watkins of Manchester next read an article on 'Bird Migration,' drawing some interesting conclusions from the reports collected by the Migration Committee during the past year. Mr. Mulliken read a very interesting paper entitled 'The Limicolæ of Ottawa County, Michigan.' Mr. Mulliken gave copious notes on the habits of twelve species, based on personal observation.

The concluding article of the program, 'History of Baird's Sandpiper in Michigan,' was read by Mr. Cole. He gave an account of the taking of this bird in Michigan, and enumerated ten specimens known to have been taken in the State.

All were well pleased with the progress made and the work done by the Club in the past year and look forward to even better success in the future.

— LEON J. COLE, *Secretary*.

Errata.—As I was not able to read the proof of my article on the 'Birds of the Coal Regions of Pennsylvania' (Auk, Oct., 1896), on account of absence from the city, two errors have unfortunately occurred. *Turdus fuscescens*, not *Turdus aonalaschka pallasii*, was noted by me at Pottsville and Rock Glen.

I noted Cowbirds at Pottsville on July 14, not July 11.—R. T. YOUNG, *Philadelphia, Pa.*

RECENT LITERATURE.

Sharpe's Catalogue of the Limicolæ.¹—As Dr. Sharpe says, the collection of Limicolæ in the British Museum "is truly a wonderful one. Of the 255 species recorded, the British Museum contains 250, and the types are 68 in number." "The specimens arranged and catalogued in it are 13,440, exclusive of many hundreds of duplicates." It is hence easily seen that the labor of preparing the present volume was very great, with, however, commensurate facilities for arriving at satisfactory results.

The Limicolæ are divided into the following six families,—*Ædicnemidæ*, with 4 genera and 11 species; *Cursoriidæ*, with 8 genera and 37 species; *Parridæ*, with 7 genera and 11 species; *Charadriidæ*, with 76 genera (44 of them monotypic) and 192 species; *Chionidæ*, with 2 genera and 3 species; and *Thinocorythidæ*, with 2 genera and 5 species. The family *Charadriidæ* includes 10 subfamilies, most of which have been often if not generally accorded the rank of families; as, for example, *Arenariinæ*, *Hæmatopodina*, *Charadriinæ*, *Himantopodina*, *Scolopacina*, *Phalaropodina*, etc.; while the genus *Aphriza*, sometimes recognized as a family, is not only reduced to generic rank, but is placed between *Oekthodromus* and *Charadrius*. While Sharpe thus degrades the rank of many groups usually recognized as families, he goes to the opposite ex-

¹ Catalogue of the Limicolæ in the Collection of the British Museum. By R. Bowdler Sharpe. London: Printed by order of the Trustees. Sold by Longmans & Co., 39 Paternoster Row; B. Quaritch, 15 Piccadilly; Dulau & Co., 37 Soho Square W.; Kegan Paul & Co., Paternoster House, Charing Cross Road; and at the British Museum (Natural History), Cromwell Road, S. W. 1896.—8vo, pp. xii + 794, pl. vii. = Catalogue of the Birds in the British Museum, Vol. XXIV.

treme in his treatment of genera, of which he here not only creates some eight or nine new ones, but elevates to generic rank a very large number of groups heretofore commonly treated as merely subgenera or else wholly ignored.

As regards matters of nomenclature, we of course expect the continuation of the confusion which results from taking the XIIth instead of the Xth edition of Linnæus's 'Systema Naturæ' as the starting-point for the law of priority, in opposition to the views of nearly all zoölogists except Sharpe and a few of his British confrères. But we can hardly understand why, after accepting *Jacana* as rightfully superceding *Parra*, he should continue to call the family Parridæ, in contravention even of the British Association Code. The genus *Asarcia* is proposed for *Jacana spinosa* (Linn., 1758), and the specific name *variabilis* (Linn., 1766) is adopted for the species. The generic name *Hydrophasianus* is replaced by the new term *Hydrophasis*, without any word of explanation or apparent reason.

Among the Charadriidæ proper, full generic rank is given to *Oxyechus*, *Ochthodromus*, *Ægialeus*, and *Podasocys*, as well as to *Squatarola*. Among the Tringæ we have as full genera *Helodromas*, *Limonites*, *Heteropygia*, *Arquatella*, *Ancylochilus*, *Pelidna*, *Rhyacophilus*, etc., while *Tringoides* takes the place of *Actitis*. As regards the status of species and subspecies which enter the North American fauna, *Charadrius dominicus fulvus* is considered not entitled to recognition; *Macrorhamphus scolopaceus*, *Ereunetes occidentalis*, and *Symphemia semipalmata inornata*, are also relegated to synonymy, *Totanus solitarius cinnamomeus* Brewster, omitted from the body of the work, is added in the Appendix, where it is given the rank of a full species, but in the Systematic Index it stands as a subspecies.

If we may judge from Mr. Sharpe's remarks on these and other similar cases, he seems to be as far as ever from grasping the idea underlying subspecies, now so well understood by many of his British and continental fellow workers.

Respecting *Ægialitis meloda circumcincta*, Mr. Sharpe sees no reason for considering it otherwise than as merely very old birds of *Æ. meloda*. *Tringa couesi* and *T. ptilocnemis* are both made subspecies of *A. maritima*, in the text, but in the Systematic Index *T. ptilocnemis* is enumerated as a full species. *Tringa (Pelidna) americana* (Cass.) (= *pacifica* Coues) stands as a full species, under Cassin's name, although the name *americana* Cassin (1858) is preoccupied by a *Tringa americana* Brehm (1855) applied to another species.

In the matter of specific names of North American birds, we have *Limosa hudsonica* instead of *L. hæmastica*, and *Phalaropus hyperboreus* in place of *P. lobatus*, on the basis of the XIIth vs. the Xth edition of Linnæus. In respect to the latter, he says the name *lobatus* "is taken from the tenth (1758) edition of the 'Systema Naturæ,' and it is also the *Tringa lobata* of the twelfth edition. Here, however, is given the name

of *Tringa hyperborea*, which, in my opinion, it is wise to adopt, as the name of *lobatus* has been applied to the Grey Phalaropes so often, that even at the present day its adoption seems certain to create confusion." To show how little there is in this plea, it may be stated that, according to Mr. Sharpe's citations, the name *lobatus* was applied just 8 times in the century 1771-1871, deducting for one reference (to Blyth, pp. 694 and 695) given twice, and for one reference (to Treat) which belongs to '*hyperboreus*'!

The bibliographical citations are very extended, under some species occupying from three to five pages. In fact, we are told in the Introduction that "The references quoted in the synonymy are 18,892. With the exception of a few books, which proved to be inaccessible, the whole mass of this literature has been actually consulted." The labor here involved no one can appreciate who has not engaged extensively in bibliographical work. It is doubtless well done, and as free from errors and transpositions as such work usually is. We miss, however, references to some publications that must have been accessible; for example, the earlier volumes of the 'Bulletin' of the American Museum of Natural History are cited but the later ones are not; and so with other works that might be mentioned, which are either quite overlooked or cited irregularly. The earlier volumes of the 'Bulletin' of the Museum of Comparative Zoölogy at Cambridge are cited as "Bull. Harv. Coll.," while later volumes are given correctly. As there is no such scientific publication as 'Bull. Harv. Coll.' there might be some trouble if one not conversant with the case should attempt to verify such references.

With all this apparently ungrateful fault-finding, we share the sense of profound indebtedness all ornithologists must feel toward Dr. Sharpe for the great boon conferred by his work on the Limicolæ, and appreciate most heartily the vast amount of drudgery it must have cost, as well as the skill and efficiency displayed in its preparation. — J. A. A.

Bendire's 'Life Histories of North American Birds.'¹—This forms, in order of appearance, Part II of the author's great work on 'The Life Histories of North American Birds', but through lack of foresight on the part of the proper authorities in such matters, we are left without any convenient method of notation to distinguish the present part of this

¹ Smithsonian Institution. | United States National Museum. | Special Bulletin. | — | Life Histories | of | North American Birds, | from the Parrots to the Grackles, | with special reference to | their Breeding Habits and Eggs, | by | Charles Bendire, Captain and Brevet Major, U. S. A. (retired). | Honorary Curator of the Department of Oölogy, U. S. National Museum, | Member of the American Ornithologists' Union. | With | Seven Lithographic Plates. | — | Washington: | Government Printing Office. | 1895 [= Oct. 1, 1896].—4to, pp. i-ix, 1-518, col. pl. i-vii, each with explanatory leaf.

monumental series from its predecessor.¹ Besides this, the work bears the date of printing and not of publication, it having been printed, or at least electrotyped, for more than a year before the Government Printing Office found it convenient to make the work accessible to the public.

The high praise bestowed upon the first part of the 'Life Histories' (Auk, IX, 1892, p. 375), issued in 1892, is equally well deserved in respect to the present volume. Indeed, the high standard set at the beginning, both as to the text and the plates, is now, if possible, surpassed. For faithful, painstaking, conscientious work, these volumes are a model that may well be followed in similar fields. The method of treatment is similar to that of the first part, already described (*l. c.*). Its special feature is the large amount of original information conveyed, either from the rich fund of the author's own experience or solicited from trustworthy correspondents for use in the present connection. As before, extraneous and thread-worn matter is excluded, a fresh harvest being given in its place. Also, as before, the plates are above criticism, and have as yet never been equalled in artistic effect or in faithfulness of execution. The amount of work entailed in the preparation of such a volume is not easily appreciated, without experience in similar lines.

The birds treated in the present volume comprise the Carolina Paroquet, the Cuckoos and Anis, one species of Trogon, three of Kingfishers, 36 kinds of Woodpeckers, 11 Goatsuckers, 4 Swifts, 18 Hummingbirds, 1 Becard, 39 Flycatchers, 13 Larks, 31 Crows, Jays and Magpies, 1 Starling and 29 Blackbirds and Orioles—197 in all. This of course includes subspecies as well as species. The seven colored plates contain an aggregate of 196 figures, all natural size, drawn by Mr. John L. Ridgway, while the chromo-lithographic reproductions are by the Ketterlinus Printing Company of Philadelphia. In species that lay white eggs, like the Hummingbirds, Swifts and Woodpeckers, only a few figures are given for each group, but in birds laying colored eggs, with more or less characteristic markings, nearly every species is figured, often two or more eggs of the same species being given to show diversity of marking in eggs of the same species.

In the text we have not only descriptions of the eggs and nests, and an account of the general habits of the birds, but special attention is given to the distribution and breeding ranges of the species. Unlike most oölogical writers, Captain Bendire gives careful attention to the technical points that distinguish species and subspecies, of which there is ample internal evidence in the volume before us. Doubtful points respecting alleged distribution are worked out, wherever possible, by direct recourse to the immense collection of bird skins in the National Museum, and questions of relationship between closely allied forms are discussed with

¹ In the 'Advertisement' it is referred to in parenthesis as 'Special Bulletin No. 3.'

the intelligence of an expert ornithologist, as witness the case, among others, of the Florida Meadowlark.

It is to be hoped that the author will be blessed with health and further opportunities for the completion of the grand work he has so successfully undertaken and already carried so far.—J. A. A.

Bird-Nesting with a Camera.¹—The prospectus accompanying this sumptuous work tells us that the edition will be limited to 300 copies of 18 to 20 parts, each part to contain ten plates, with descriptions of the habits of the species, and a more special history of the nests illustrated. Material has already been collected for the first thirteen parts, which will be issued at intervals of four to six weeks, and with the exception of "one or two" of the rarer species the author expects to present a complete series of the nests of British birds photographed *in situ*. If he succeeds in his undertaking, and in the remaining parts of his work maintains the standard of excellence reached by Part I, he will have made on unparalleled contribution to ornithology.

Only those who have tried it know how much patience and ingenuity is required to obtain satisfactory photographs of birds' nests, and only those who have had experience with publishers know how difficult it is to secure a proper reproduction of the photograph after it is made. In both tasks Mr. Lee has achieved unqualified success. The ten photogravures included in Part I of his work, whether viewed from the standpoint of the photographer or reproducer, are above criticism, while neither pen nor pencil could so graphically illustrate the nesting haunts of the species they represent.

The text presents a general account of the species as a British bird, and very wisely, a particular account of the nest figured, with interesting incidents concerning the making of the photograph.—F. M. C.

Thompson's Art Anatomy.²—This admirable work is an outcome of the author's training both as a naturalist and artist. It goes without saying that no anatomist could alone have produced the series of beautiful plates

¹ Among British Birds in their Nesting Haunts. Illustrated by the Camera. By Oswin A. J. Lee. Part I. Edinburgh. David Douglas. Folio, pp. 39, pll. x. (Price 10s. 6d. per part to subscribers only.)

² Studies in the | Art Anatomy of Animals | Being a Brief Analysis of the Visible Forms of the more | Familiar Mammals and Birds. Designed for the | Use of Sculptors, Painters, Illustrators, | Naturalists, and Taxidermists. | By | Ernest E. Seton Thompson | Naturalist to the government of Manitoba; Author of "The Birds of Manitoba," "The Mammals of Manitoba," | "The King of Currumpaw," *Exposant au Salon*. | Illustrated with One Hundred Drawings by the Author | London | Macmillan and Co., Ltd. | New York: The Macmillan Co. | 1896.—Folio, pp. viii + 87; pll. xlix.

with which Mr. Thompson illustrates his theme and proves his thesis; and it is equally true that no artist could have drawn them without a knowledge of the anatomical details upon which they are based. Mr. Thompson's plea is for scientific exactness as well as for artistic excellence. He rightly claims that no result can be correct which is fundamentally wrong, and he presents his fellow artists with a series of original studies of the visible form of mammals and birds as it is governed by bones and muscles, tendons, veins and nerves, hair, feathers, which they will do well to consider.

We are here concerned only with that part of the work relating to birds. Plates are given illustrating the pterylosis of a typical passerine bird (*Passer domesticus*), a Kestrel (*Falco alaudarius*), and a Quail (*Coturnix communis*). Special attention is paid to the intricate arrangement of the feathers of the wing, and to the effect produced by the feathers of certain pterygæ when in proper position. This is further shown by a remarkable drawing of the Peacock's spread train, which, when in good condition, is found to present a perfect half circle, the ocelli being bisected by the radii and equidistant concentric circles.

Mr. Thompson has rendered a service to science and to art for which all lovers of truth and beauty cannot be too grateful.—F. M. C.

Miss Merriam's 'A-Birding on a Bronco'.¹—'A-Birding on a Bronco' consists of a series of nineteen chapters or studies, mostly here printed for the first time, illustrated with numerous 'half-tones' from photographs of some of the scenes described and by spirited drawings of birds and birds' nests by Mr. Fuertes. The scene of Miss Merriam's studies is the vicinity of Twin Oaks, in southern California, "thirty-four miles north of San Diego, and twelve miles from the Pacific," where parts of two summers were spent a-field with the birds. About sixty species are referred to at greater or less length, while a score or more are made the subject of special study. Some twenty pages are devoted to 'The Little Lover,' in other words, the Western House Wren, and as many more to the Western Gnatcatcher. The chief characters of another chapter are some young California Woodpeckers, while Bush-tits, Orioles, Chewinks, Humming-birds, the Valley Quail, the Road-runner, and others come in for a liberal share of attention. Miss Merriam is a sympathetic as well as a keen observer of birds in their native haunts, and relates in minute detail the vicissitudes of bird-life as seen in her numerous excursions to their favorite haunts. As may be inferred from the title of the book, two trusty broncos—one during the season of 1889 and the other in 1894—afforded her not only means of easy travel during her daily excursions but also pleasant

¹ A-Birding on a Bronco | By Miss Florence A. Merriam | . . . [= Motto, 3 lines] | Illustrated | [Vignette] | Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1896.—16mo, pp. x + 227. (Price \$1.25.)

companionship. While Mrs. Miller and other well known writers have made us familiar with the domestic trials and housekeeping methods of many of our eastern birds, Miss Merriam here enters a new field, and tells us in a charming way of the nest-building and brood-rearing ways of a score or more of interesting types of western bird-life. The work is of course non-technical, as it should be, being a popular contribution to bird-lore, yet, abounds with interesting observations of permanent value. — J. A. A.

'Papers presented to the World's Congress of Ornithology.'¹ — From the 'Publisher's note,' we learn that the few weeks intervening between the appointment of the Committee of the World's Congress of Ornithology (see Auk, X, 1893, 386) and the session of the Congress, did not enable the Committee to do all it wished to secure the co-operation of ornithologists living at a distance from Chicago, "but they had reason to be much gratified at the measure of success attained, as witnessed by the large and interested audiences which attended every session, and the many papers which were read in person or by proxy." The Congress was held Oct. 18-21, 1893, the sessions occupying four days.

This Congress differed from other World's Congresses of Ornithology that have been held in that it was not, and was not intended to be, to any large extent a scientific congress; the subject of Ornithology being approached mainly from its economic, æsthetic, and humanitarian sides. Indeed, the motto chosen to grace the titlepage — "Birds must and shall be protected" — is the key-note to the volume. Of the 27 papers contained in the work, not one can be considered as technical; all are written in a popular vein, and nearly all, from the 'Presidential Address,' by Dr. Coues, to almost the last paper in the volume, approach the subject of birds from the side of the humanitarian. Many of the papers are charmingly written, and there is less repetition and less of the commonplace than the nature of the subject would naturally lead one to expect. The papers here gathered are well worthy of the permanency now secured for them, and of their attractive typographical setting. Their perusal should tend not only to stimulate interest in bird protection, but in the popular study of birds for the pleasure it brings. The list of contributors includes a number of well known ornithologists, as well as many popular writers of distinction on ornithological subjects. The edition is limited to 600 numbered copies. — J. A. A.

¹Papers | presented to the | World's Congress | on | Ornithology | Edited by
| Mrs. E. Irene Rood | Chairman Woman's Committee of the Congress |
under the direction of | Dr. Elliott Coues | President of the Congress, Ex-
President of the American Ornithologist's Union. | — "Birds must and shall be
protected." | — | Chicago | Charles H. Sergel Company | 1896.— 8vo, pp. 208.
(Price, \$5.00, net.)

The Revised New Nuttall.—The second edition of the Nuttall-Chamberlain 'Manual,' recently issued,¹ comes to us under a modified title, properly indicating the scope of the work.² It is also embellished with twenty chromolithographic plates, giving figures of about 110 species. In the case of the majority of the species, they are sufficiently truthful in coloring to be of material service to the inexperienced student of birds; in the other cases they are very good reproductions of very poor originals.

The text, of course, is mainly as in the first edition, being printed from the same electrotypes plates, but many important corrections have been made, here and there, in the parts by Mr. Chamberlain, through which means the work is more nearly 'brought down to date,' and much improved. This is noticeable especially in the matter relating to the subject of geographical distribution; but if one were disposed to be critical, various desirable improvements, overlooked in the present revision, might be pointed out.

The preface to the first edition, or what purports to be such, is retained, but comparison of it with the preface to the first edition shows that 19 lines in pp. vi and vii have been expunged and replaced by 21 lines of new matter, of quite different import and much more creditable to the taste of the editor. Yet the preface, thus materially altered, still bears date "September, 1891." This, to say the least, is an idiosyncrasy in book-making we do not remember to have before seen.

This revised edition of the Nuttall-Chamberlain 'Manual,' with its amended title and important correction in the text, and the added helpful colored illustrations, is well deserving of generous patronage, as a Popular Handbook of the Ornithology of Eastern North America.—J. A. A.

Millais on Change to Spring Plumage without a Moulting.³—The intent of this paper is to show that in acquiring their summer plumage certain species of water-birds undergo not a moult but a recoloration and restoration of the old feathers of the winter dress. The Sanderling (*Calidris arenaria*) is taken as a typical example of this change, and feathers

¹ A Popular Handbook | of the | Ornithology | of | Eastern North America. | By | Thomas Nuttall. | Second revised and annotated edition | By Montague Chamberlain. | With Additions | and One Hundred and Ten Illustrations in Colors. | [Cut of Hummingbird] Vol. I | The Land Birds. | [Vol. II. Game and Water Birds.] | Boston: | Little, Brown, and Company. | 1896. — 2 vols, crown 8vo. Vol. I, pp. i-liv, 1-473; Vol. II, pp. i-vii, 1-431, col. pll. i-xx, and 172 illustrations in the text.

² For notice of the first edition, see Auk, IX, 1892, pp. 59-61.

³ On the Change of Birds to Spring Plumage without a Moulting. By John Guille Millais. Ibis, 7th ser., Vol. II, Oct. 1896, pp. 451-457, pl. x.

plucked from this species at various dates form a series depicted in a colored plate, which purports to show a color change without moult. It so happens, however, that Mr. Chapman has also studied the Sanderling (Bull. Am. Mus. Nat. Hist., VIII, 1896, pp. 1-8) and states that the change is due to a moult. That all who read may each judge for himself which of the two writers has the best claim to credence, I make use of the 'deadly parallel column,' italicizing the important features. Mr. Millais's remarks are given in the first column, Mr. Chapman's in the second.

MR. MILLAIS.

"Illustrations are given (Plate X, figs. 8-12) showing the *gradual change* of a feather from the back of the neck *during the period extending from March to August*.

"... Mr. Allen's chief argument seems to be that a feather once completed is dead and retains no further power of transmitting color through the quill from the epidermis. Now if this were the case how is it that we find a feather like that of figs. 9, 10 and 11—feathers which are to be found in the plumage of the bird during successive months? According to Mr. Allen the bird would have to renew its feathers every month which is a manifest impossibility. As there can be no reasonable doubt that the same feather goes through the changes exhibited in figs. 9-12 (*because there is no moult during that period*), and as we have the proof of all intermediate changes of the feathers taking place, there seems equally little reason to doubt that fig. 8 passes into fig. 9, for here again we have the transition shown. We know that many of the small perching birds assume their summer plumage by means of the gray edgings of the feathers wearing off; *I do not, however, think that this takes place*

MR. CHAPMAN.

"This brings us to the change from winter to breeding plumage, which Herr Gätke, as already described, asserts is accomplished without moult.

"My series of twenty specimens illustrating *this change* show that it *begins late in March* or during the first half of April *and is completed in May*. They show, furthermore, that *it is accomplished by a molt*. In proof of this statement I will describe several of these molting birds. No. 3685 (Coll. Geo. B. Sennett, Corpus Christi, Texas, March 28, 1886) is to all outward appearances in the winter plumage of the adult, but examination shows that *the molt is in active progress over the entire body*, in the scapulars, tertials, all but the greater series of wing-coverts, the upper and under tail-coverts. . . . Am. Mus. No. 45485 (California, April 13, Xantus) closely resembles the preceding . . . No. 6042 (Coll. Geo. B. Sennett, Corpus Christi, Texas, April 20, 1889, Singley) is slightly more advanced than either of the birds just described. *New feathers are appearing not only over the whole body*, tertials, lesser and median wing-coverts, but the molt extends to the outer pair of tail-feathers,

in the case of the Sanderling, in the change from fig. 10 to fig. 11, but that it is the colouring matter moving down the feather and obliterating the white. After this change, *I think* that the edge of the feather then wears away in an appreciable degree, causing its form to be altered as seen in fig. 12.

"To sum up, so far I see no reason whatever to differ from the opinion of many of our own naturalists, and *I maintain that Herr Gütke's solution of the Spring change of the Dunlin and the Sanderling is perfectly correct as regards an actual influx of pigment through the old feather*, whilst Mr. Frank M. Chapman's observations on these two birds in the same journal as Mr. Allen's require modification. We know well that new feathers come in place of the few that are cast, but that is no evidence that the whole bird undergoes a moult of all except the rectrices and remiges."

which with the median pair are about half grown. Only seven of the twelve old tail-feathers remain, and it seems probable that all the rectrices are renewed. Am. Mus. No. 60007 (Micco, Florida, April 30, 1891; C. S. Allen) has nearly completed the molt, though new feathers are still appearing all over the body. The rectrices, tertials and lesser and median wing-coverts have apparently been renewed. Nearly all the newly-grown or growing feathers of the upper parts are broadly tipped with ashy gray, which, as *numerous specimens show, is later worn off*, leaving the black and rufous of the full breeding plumage. It is evidently unnecessary to describe *other specimens* in this series which *show the molt in every stage*, and prove beyond question the manner in which the change from winter to summer plumage is accomplished."

Comment seems quite unnecessary, and such evidence as Mr. Chapman's can hardly be set aside as needing "modification" by so uncompromisingly biased a writer as Mr. Millais. The balance of his article need not occupy us seriously, for he states no facts which are not admitted by everybody, and figures no feathers which new growth could not have produced. He even admits that some of the feathers *are* of new growth, but clings to the old idea of color change in others adjacent. He finds a moult in *Harelda glacialis*, a winter resident, and only slight evidences of one in the transient migrants, *Podiceps auritus* and *Calidris arenaria*. The fact, that most birds largely complete their moult *before* migrating seems to have been quite overlooked in explaining these differences. In fact, the superficial views of the sportsman rather than the deductions of a careful ornithologist pervade the article, which smacks strongly of the very dogmatism the author so deprecates in others.—J. D., Jr.

Wintle's 'Birds of Montreal'.¹—The work opens with a descriptive and historical preface of twelve pages, followed by (pp. 1–135) a copiously annotated list of 254 species, arranged in accordance with the classification and nomenclature of the A. O. U. Check-List, the names of the higher groups being included. The character of the 'List' is sufficiently indicated by the descriptive portion of the title page, already transcribed in the accompanying footnote. This is succeeded by what is properly part two of the book, containing "Abridged Descriptions of the Birds of Montreal, specially given for the purpose of identification for persons not familiar with their general appearance," occupying pp. 137–214, the existence of which excellent feature the title page gives no intimation. These descriptions consist of about five to ten lines each, and for the most part give very well the distinctive features of the species. This is succeeded by a very full index of vernacular names (pp. 215–227), and by still a third part, also not indicated on the title page. This has an embellished title page of its own as an 'inset,' with the title, "Original Sporting Sketches, compiled by David Rennie, 1895." It is paged continuously with the rest of the book (forming pp. 229–281), but is set in smaller type. The book appears to well meet the needs of a local, popular hand book. It is well printed in rather large type, on good paper, and typographically presents an attractive appearance. It is somewhat marred by the printer's eccentricities of punctuation in connection with the technical names, but typographical errors are not numerous.—J. A. A.

Oberholser's *Birds of Wayne County, Ohio*.²—The list proper includes 183 species, and is followed by a 'Hypothetical List' of 82 species, which

¹ The | Birds of Montreal | By | Ernest D. Wintle, | "Associate Member of the American Ornithologists Union." | Birds observed in the vicinity of Montreal, Province of Quebec, | Dominion of Canada, with annotations as to whether they | are "Permanent Residents," or those that are found | regularly throughout the year; "Winter Visitants," | or those that occur only during the winter season, | passing north in the spring; "Transient Visitants," or those that occur only | during migrations in spring and | autumn; "Summer Residents," | or those that are known to | breed, but which depart southward before winter; and "Accidental Visitants," or strag- | glers from remote districts; giving | their relative abundance as to whether | they are *rare*, *scarce*, *common* or *abundant*; | data of *nests* and *eggs* when found, and especially | noting the species that breed in the *City* and *Mount* | *Royal Park*; also *data* of migratory *arrivals* and *de-* | *partures*, and other notes, all of which are deduced | from original observations made during the past fifteen years. | — | Montreal: | W. Drysdale & Co. | — | 1896.—8vo., pp. xiv + 181, with an outline map and several plates.

² A Preliminary List of the Birds of Wayne County, Ohio. By Harry C. Oberholser. Bull. of the Ohio Agricultural Experiment Station. Technical Series, Vol. I, Number 4, July, 1896, Art. xxiv, pp. 243–354.

includes species of probable occurrence in the region, but not as yet positively known to the writer to have been found there. As most of them are natural to the region, the conservatism here shown is the more commendable. As said in the 'Introduction': "That the present paper may serve as a basis for future observations is the chief excuse for its existence. With this purpose in view much care has been exercised to avoid the inclusion of any but perfectly reliable records. All but four species have been personally identified by the writer, either in the field or from specimens in local collections; and these four exceptions have been admitted only upon what has been considered satisfactory evidence of their occurrence." The paper is based mainly on observations made by the writer between February 8, 1890 and April 9, 1894. Of the 183 species noted, 30 are classified as permanent residents, 61 as summer residents, and 57 as transient visitors, and these latter are further subdivided in accordance with their manner of occurrence. The annotations are often quite extended, relating to the nesting habits of the species as well as to their relative abundance and seasons of occurrence. The nomenclature is that of the A. O. U. Check-List, and includes the names of the higher groups as well as those of the species. Also various familiar text illustrations are introduced.—J. A. A.

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NOTES AND NEWS.

MR. HOWARD GARDNER NICHOLS, an Associate Member of the A. O. U., and for a number of years a Resident Member of the Nuttall Ornithological Club, died June 23, 1896, at the early age of 25 years, at Atlanta, Georgia, from injuries received several weeks before by the fall of a piece of machinery in a cotton mill at Alabama City, Alabama. He was a graduate of Harvard in the class of 1893. After graduation he went into the business of cotton manufacturing, and at the time of his death was the manager of a large plant for the weaving of cotton at Alabama City. He was very successful in this undertaking, and had every prospect of a brilliant future. What leisure time he had was largely devoted to the study of birds, and the same zeal and earnestness which he carried into all his work promised much of value as the result of his investigations of the little-known fauna of the region in which he was situated. At the time of his death he was mayor of Alabama City, where his death was mourned as an irreparable public loss, and where he was honored and respected for "his sterling worth, strict integrity, and noble charity."

THE ACTION on the Amendments to the By-Laws of the A. O. U. proposed at the Thirteenth Congress, and referred to the Fourteenth Congress, resulted as follows: The first and third proposed changes were not adopted, but the proposed addition of the words "together with the Ex-Presidents" to the second amendment was adopted. The first paragraph of Article II, Section I, as amended, reads as follows:—

"Article II, Section I. The Officers of the Union shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and seven Councillors. These Officers, together with the Ex-Presidents, shall constitute the Board of Management or Council of the Union, for the transaction of such business as may be assigned to it by the By-Laws or by the Union."

THE ornithological collection formed by the late Dr. William Wood, of East Windsor Hill, Conn., has been presented by his widow and children to the Hartford (Conn.) Scientific Society, and will soon be placed on exhibition in the rooms of the Society. The collection is mostly mounted, and contains many excellent specimens of the rapacious birds found in Connecticut.

DAVID DOUGLAS, Edinburgh, has issued a prospectus of 'A History of Fowling, being an account of the many curious devices by which Wild Birds are or have been captured in different parts of the World,' by the Rev. H. A. Macpherson. It will form a quarto volume of about 450

pages, with numerous illustrations in the text. As a "considerable amount of antiquarian lore" is interwoven with the general narrative, the book is likely to interest other readers besides ornithologists. Subscription price, 21s.

As we go to press we are in receipt of Part XVI—the last and concluding part—of Mr. H. Nehrling's excellent 'North American Birds,' with plates xxxv and xxxvi, pp. 337 to 452, and index and title pages. The work forms two large quarto volumes, beautifully printed, and illustrated with thirty-six colored plates.

IN 'SCIENCE' for Jan. 1, 1897 (N. S. Vol. V, p. 26), is a short communication from H. Helm Clayton, of the Blue Hill Meteorological Observatory, Readville, Mass., on 'The Velocity of a Flight of Ducks obtained by Triangulation.' From observations made with specially constructed theodolites, used in determining the heights and velocities of clouds, Mr. S. P. Fergusson and the writer of the article in question succeeded in obtaining measurements of the height and velocity of flight of a flock of Ducks which crossed their field of observation on the morning of December 8, 1896. The height of the Ducks was 958 feet, and the rate of flight 47.8 miles per hour. This record is of special interest, there being as yet so few trustworthy observations of the velocity of flight of birds.

THE A. O. U. Committee on Protection of North American Birds has increased its membership with a view to more effective work, and is at present constituted as follows:

WILLIAM DUTCHER, *Chairman*, 525 Manhattan Ave., New York, N. Y.

GEORGE H. MACKAY, 218 Commonwealth Ave., Boston, Mass.

E. H. FORBUSH, Ornithologist State Board of Agriculture, Malden, Mass.

MRS. OLIVE THORNE MILLER, 628 Hancock St., Brooklyn, N. Y.

WITMER STONE, Academy of Natural Sciences, Philadelphia, Pa.

MRS. JULIA STOCKTON ROBINS, 114 So. 21st St., Philadelphia, Pa.

MISS FLORENCE A. MERRIAM, 1919 16th St., N. W., Washington, D. C.

DR. T. S. PALMER, Biological Survey, U. S. Department of Agriculture, Washington, D. C.

RUTHVEN DEANE, 24 Michigan Ave., Chicago, Ill.

O. WIDMANN, Old Orchard, Mo.

MRS. E. IRENE ROOD, Fort Worth, Texas.

LEVERETT M. LOOMIS, Academy of Sciences, San Francisco, Cal.

A. W. ANTHONY, 1929 Front St., San Diego, Cal.

A large edition of the Annual Report of the Committee for 1896 has been published for free distribution. The Committee will gladly receive the co-operation of individuals, Committees or Societies interested in the better protection of our native birds.

EIGHTH SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF
NORTH AMERICAN BIRDS.

TWO YEARS have elapsed since the publication of the Seventh Supplement to the A. O. U. Check-List of North American Birds, during which period the Committee on Classification and Nomenclature has held three sessions,—one in Cambridge and two in Washington. Five of the decisions reached by the Committee at its first Washington meeting were incorporated in the second edition of the Check-List, published in December, 1895. These are included below with the others, and are distinguished by an asterisk prefixed to the marginal number of the species. In the subjoined list are included all of the cases published in 'The Auk' for January, 1897, they having come before the Committee at its last session, in proof sheets of this number of 'The Auk'.

As heretofore, the numbers at the left of the scientific names facilitate collation with the Check-List. The interpolated species and subspecies are numbered in accordance with the provision made therefor in the Code of Nomenclature (p. 14, last paragraph).

Committee	{	WILLIAM BREWSTER, <i>Chairman</i> .
		J. A. ALLEN.
		ELLIOTT COUES.
		C. HART MERRIAM.
		ROBERT RIDGWAY.

I. ADDITIONS.

108.1. *Oceanodroma socorroensis* TOWNSEND.*Socorro Petrel*.

Oceanodroma socorroensis TOWNSEND, Proc. U. S. Nat. Mus.
XIII, 1890, 134.

[B—, C—, R—, C—.]

GEOG. DIST.—Islands off west coast of Mexico, north to San Diego, Cal. (Cf. ANTHONY, Auk, XIII, Oct. 1895, 387.)

GENUS **MERGUS** LINNÆUS.

Mergus LINN. S. N. ed. 10, 1758, 129. Type, by elimination, *Mergus albellus* LINN.

[131.1.] **Mergus albellus** LINN.

Smew.

Mergus albellus LINN. S. N. ed. 10, 1758, 129.

[B 614, C—, R—, C—.]

GEOG. DIST.—In summer, northern Europe and Asia; in winter, south to the Mediterranean, northern India, China and Japan. Accidental in northern North America. (Cf. SALVADORI, Cat. Bds. Br. Mus. XXVII, 1896, 467, 468.)

GENUS **CASARCA** BONAPARTE.

Casarca BON. Geogr. & Comp. List, 1838, 56. Type, *Anas rutila* PALL. = *Anas casarca* LINN.

[141.1.] **Casarca casarca** (LINN.).

Ruddy Sheldrake.

Anas casarca LINN. S. N. ed. 12, III, App. 1768, 224.

Casarca casarca ALLEN, Auk, XIII, 1896, 164, 243.

[B—, C—, R—, C—.]

GEOG. DIST.—Southern Europe and southern Asia, south to northern Africa. Accidental in Greenland, Iceland, and the Scandinavian Peninsula. (Cf. ALLEN, Auk, *l. c.*)

[171.1.] **Anser fabalis** (LATH.).

Bean Goose.

Anas fabalis LATH. Gen. Syn. Suppl. I, 1787, 297.

Anser fabalis SALVAD. Cat. Bds. Brit. Mus. XXVII, 1895, 99.

[B—, C—, R—, C—.]

GEOG. DIST.—Northern Asia, eastward into northern Europe; in winter south to southern Europe and northern Africa. Accidental in Greenland. (Cf. SALVADORI, *l. c.*)

201c. ***Ardea virescens anthonyi* MEARNS.**

Anthony's Green Heron.

Ardea virescens anthonyi MEARNS, Auk, XII, July, 1895, 257.

[B 493, *part*, C 457, *part*, R 497, *part*, C 663, *part*.]

GEOG. DIST.—Arid region of southwestern United States, and southward into Mexico.

SUBGENUS **ASARCIA** SHARPE.

Asarcia SHARPE, Cat. Bds. Brit. Mus. XXIV, 1896, 86.

Type, *Parra variabilis* LINN. 1766 = *Fulica spinosa* LINN. 1758. (Cf. COUES, Auk, XIV, Jan. 1897, 88.)

The genus *Asarcia* SHARPE is accepted as a subgenus.

302d. ***Lagopus rupestris townsendi* ELLIOT.**

Townsend's Ptarmigan.

Lagopus rupestris townsendi ELLIOT, Auk, XIII, Jan. 1896, 26.

[B—, C—, R—, C—.]

GEOG. DIST.—Kyska and Adak Islands, Aleutian Chain.

302.1. ***Lagopus evermanni* ELLIOT.**

Evermann's Ptarmigan.

Lagopus evermanni ELLIOT, Auk, XIII, Jan. 1896, 25, pl. iii.

[B—, C—, R—, C—.]

GEOG. DIST.—Attu, one of the Aleutian Islands, Alaska.

SUBGENUS **BREWSTERIA** MAYNARD.

Brewsteria MAYNARD, Bds. East. N. Am. pt. 40 [1896],

691. Type, *Archibuteo ferrugineus* (LICHT.).

Accepted as a subgenus of *Archibuteo*.

375c.—***Bubo virginianus pacificus* CASSIN.**

Pacific Horned Owl.

Bubo virginianus var. *pacificus* CASS., Ill. Bds. Cal., Texas, etc., July, 1854, 178.

[B 48, *part*, C 317*b*, R 405*b*, *part*, C 464.]

GEOG. DIST.—Southern California (exact range not known).

394c. **Dryobates pubescens medianus** (SWAINS.).

Downy Woodpecker.

Picus (Dendrocopus) medianus SWAINS. in SWAINS. & RICH.
Faun. Bor.-Am. II, 1831, 308.

Dryobates pubescens medianus BREWSTER, Auk, Jan. 1897, 82.

[B 76, *part*, C 299, *part*, R 361, *part*, C 440, *part*.]

GEOG. DIST.—Middle and northern parts of eastern United States and northward.

No. 394, **Dryobates pubescens**, the Southern Downy Woodpecker, thus becomes restricted to the South Atlantic and Gulf States, from South Carolina to Florida and Texas. (Cf. BREWSTER, *l. c.*)

394d. **Dryobates pubescens nelsoni** OBERHOLSER.

Nelson's Downy Woodpecker.

Dryobates pubescens nelsoni OBERHOLSER, Proc. U. S. Nat.
Mus. XVIII, 1895, 549.

[B 76, *part*, C 299, *part*, R 361, *part*, C 440, *part*.]

GEOG. DIST.—Alaska and northern British America.

407. **Melanerpes formicivorus** (SWAINS.).

Ant-eating Woodpecker.

Picus formicivorus SWAINS. Phil. Mag. I, 1827, 439.

Melanerpes formicivorus BONAP. Consp. Av. I, 1850, 115.

[B 95, *part*, C 310, *part*, R 377, *part*, C 454, *part*.]

GEOG. DIST.—Western Texas, New Mexico, and Arizona, thence southward over the tablelands of Mexico.

(The numeration of Nos. 407 and 407*a* hereby becomes changed to 407*a* and 407*b* respectively.)

414a. **Colaptes chrysoides brunescens** ANTHONY.

Brown Flicker.

Colaptes chrysoides brunescens ANTHONY, Auk, XII, Oct.
1895, 347.

[B 99, *part*, C 313, *part*, R 379, *part*, C 458, *part*.]

GEOG. DIST.—Northern Lower California.

420c. ***Chordeiles virginianus sennetti*** (COUES).

Sennett's Nighthawk.

[*Chordeiles popetue*] *sennetti* COUES, Auk, V, Jan. 1888, 37.

Chordeiles virginianus sennetti BISHOP, Auk, XIII, April 1896, 134.

[B 115, *part*, C 267a, *part*, R 357a, *part*, C 400, *part*.]

GEOG. DIST.—Treeless region of the Great Plains, from the Saskatchewan south to Texas.

498c. ***Agelaius phoeniceus floridanus*** MAYNARD.

Florida Red-wing.

Agelaius phaniceus floridanus MAYNARD, Bds. East. N. Am., pt. 40 [1896], 689.

[B 401, *part*, C 212, *part*, R 261, *part*, C 316, *part*.]

GEOG. DIST.—Florida.

544.1. ***Ammodramus sanctorum*** COUES.

San Benito Sparrow.

Passerculus sanctorum COUES, Key N. Am. Bds. 2d ed. 1884, 364.

Ammodramus (*Passerculus*) *sanctorum* COUES, Auk, XIV, Jan. 1897, 92.

[B—, C—, R—, C—.]

GEOG. DIST.—San Benito Island, Lower California.

550c. ***Ammodramus maritimus macgillivrayi*** AUD.

Louisiana Seaside Sparrow.

Fringilla macgillivrayi AUD. Orn. Biog. II, 1834, 285; IV, 1838, 394, pl. ccclv.

Ammodramus maritimus macgillivrayi RIDGW. Man. N. Am. Bds. 2d ed. 1896, 602.

[B—, C 165, *part*, R—, C 238, *part*.]

GEOG. DIST.—Coast of Louisiana, to coast of Texas in winter.

581j. ***Melospiza fasciata juddi* BISHOP.**

Dakota Song Sparrow.

Melospiza fasciata juddi BISHOP, Auk, XIII, April, 1896, 132.

[B—, C—, R—, C—.]

GEOG. DIST.—Turtle Mountain, and vicinity, North Dakota.

581k. ***Melospiza fasciata merrilli* BREWSTER.**

Merrill's Song Sparrow.

Melospiza fasciata merrilli BREWSTER, Auk, XIII, Jan. 1896, 46.

[B—, C—, R—, C—.]

GEOG. DIST.—Type locality, Fort Sherman, Idaho.

* 581.1. ***Melospiza insignis* BAIRD.**

Bischoff's Song Sparrow.

Melospiza insignis BAIRD, Trans. Chicago Acad. Sci. I, 1869, 319, pl. xxix, fig. 2.

(Cf. RICHMOND, Auk, XII, Apr. 1895, 144. Also Check-List, 2d ed. 1895, 243.)

585d. ***Passerella iliaca stephensi* ANTHONY.**

Stephens's Sparrow.

Passerella iliaca stephensi ANTHONY, Auk, XII, Oct. 1895, 348.

[B 376a, part, C—, R 235b, part, C 285, part.]

GEOG. DIST.—Mountains of southern California (type locality, San Jacinto Mts.).

593d. ***Cardinalis cardinalis floridanus* RIDGW.**

Florida Cardinal.

Cardinalis cardinalis floridanus RIDGW. Man. N. Am. Bds. 2d ed. 1896, 606.

[B 390, part, C 203, part, R 242, part, C 299, part.]

GEOG. DIST.—Florida.

648a. ***Compothlypis americana usneæ* BREWSTER.**

Northern Parula Warbler.

Compothlypis americana usneæ BREWSTER, Auk, XIII, Jan. 1896, 44.

[B 168, *part*, C 58, *part*, R 88, *part*, C 93, *part*.]

GEOG. DIST.—New England, New York, and westward along the northern tier of States, and northward into the Maritime Provinces and Ontario, migrating southward beyond the United States in winter.

652b. ***Dendroica æstiva rubiginosa* (PALL.).**

Alaskan Yellow Warbler.

Motacilla rubiginosa PALLAS, Zoogr. Rosso-Asiat. I (1811 ?), 1831, 496.

Dendroica æstiva rubiginosa OBERHOLSER, Auk, XIV, Jan. 1897, 76.

[B 203, *part*, C 70, *part*, R 93, *part*, C 111, *part*.]

GEOG. DIST.—Alaska and British Columbia, southward through western United States in migration.

654a. ***Dendroica cærulescens cairnsi* COUES.**

Cairns's Warbler.

Dendroica cærulescens cairnsi COUES, World's Cong. on Orn. of 1893, Nov. 1896, 138.

Dendroica cærulescens cairnsi COUES, Auk, XIV, Jan. 1897, 97.

[B 193, *part*, C 76, *part*, R 94, *part*, C 117, *part*.]

GEOG. DIST.—Higher parts of the Alleghanies, from Virginia to Georgia.

SUBGENUS **CHAMÆTHLYPIS** RIDGW.

Chamæthlypis RIDGW. Man. N. Am. Bds. 1887, 525. Type,

Geothlypis poliocephala BAIRD.

(Accidentally omitted from the Check-List, 2d ed., 1895.)

II. CHANGES OF NOMENCLATURE.

- 18a. **Fratercula arctica glacialis** (TEMME.) Check-List, 2d ed 1895, 5.

The first reference should be as in the original edition, *vis.*: *Mormon glacialis* "LEACH," TEMME. Man. d'Orn. 2d ed. II, 1820, 933. (Cf. STONE, Auk, XIII, Apr. 1896, 185; ALLEN, *ibid.* 189.)

89. **Puffinus major** FABER. This becomes

Puffinus gravis (O'REILLY).

Procellaria gravis O'REILLY, Voy. to Greenland, etc. 1818, 140, pl. 12, fig. 1.

Puffinus gravis SALVIN, Cat. Bds. Br. Mus. XXV, 1896, 373.

The name *gravis* O'REILLY (1818) has four years' priority over *major* FABER (1822).

98. **Puffinus gavia** (FORST.). This becomes

Puffinus opisthomelas COUES.

Puffinus opisthomelas COUES, Proc. Acad. Nat. Sci. Phila. 1864, 139, 144.

Considered as specifically distinct from *Puffinus gavia* (FORST.). (Cf. RIDGWAY, Man. N. Am. Bds. 2d ed. 1896, 60; SALVIN, Cat. Bds. Br. Mus. XXV, 1896, 380.)

- 114.1. **Sula gossi** GOSS. This will stand as

Sula nebouxii MILNE-EDWARDS.

Sula nebouxii MILNE-EDWARDS, Ann. Soc. Nat. Zool. 52, Ann. VI, Ser. T, XIII, 1882, No. 2-4, Art. 4, 37, pl. xiv.

The name *nebouxii* MILNE-EDWARDS has priority over *gossi* GOSS. (Cf. RIDGWAY, Man. N. Am. Bds. 2d ed. 1896, 584.)

GENUS **CLANGULA** LEACH (Check-List, 2d ed. p. 55).

This becomes

GENUS **HARELDA** STEPHENS.

Harelda STEPHENS (ex LEACH, MS.?) in Shaw's Gen. Zool. XII, pt. ii, 1824, 174. Type, *Anas glacialis* LINN. (1766 = *A. hyemalis* LINN. 1758).

154. **Clangula hyemalis** LINN. hence becomes

Harelda hyemalis (LINN.).

Anas hyemalis LINN. S. N. ed. 10, I, 1758, 126.

Harelda hiemalis L. BREHM, Vogelfang, 1855, 386.

- GENUS **GLAUCIONETTA** STEJNEGER (Check-List, 2d ed. p. 54). This becomes

GENUS **CLANGULA** LEACH.

Clangula LEACH, in Ross's Voy. Discov. 1819, App. xlviii, (ex GESNER). Type, *Anas clangula* LINN. (Cf. SALVADORI, Cat. Bds. Br. Mus. XXVII, 1895, 376.)

151. **Glaucionetta clangula americana** (BONAP.) hence becomes

Clangula clangula americana BONAP.

Clangula americana BONAP. Geog. & Comp. List, 1838, 58.

Clangula clangula americana A. O. U. COMM. MS.

152. **Glaucionetta islandica** (GMEL.) becomes

Clangula islandica (GMEL.).

Anas islandica GMEL. S. N. I, 1788, 541.

Clangula islandica BONAP. Cat. Met. Ucc. Eur. 1842, 74.

163. **Oidemia americana** SW. & RICH. The authority should be SWAINS. Hence, \

Oidemia americana SWAINS. The reference should stand as follows :

Oidemia americana SWAINS. in SWAINS. & RICH. Faun. Bor.-Amer. II, 1831, 450.

(Cf. STONE, Auk, XIII, Apr. 1896, 186, and ALLEN, *ibid.* 190.)

167. **Erismatura rubida** (WILS.). This becomes

Erismatura jamaicensis (GMEL.).

Anas jamaicensis GMEL. Syst. Nat. I, ii, 1788, 519.

Erismatura jamaicensis SALVAD. Cat. Bds. Br. Mus. XXVII, 1896, 445.

The name *Anas rubida* WILSON (1814) is antedated by *A. jamaicensis* GMELIN (1788).

SUBGENUS **STEGANOPUS** VIEILLOT (Check-List, 2d ed. p. 83).

This is raised to a full genus. No. 224 will hence stand as

224. **Steganopus tricolor** VIEILL

Steganopus tricolor VIEILL. Nouv. Dict. d'Hist. Nat. XXXII, 1819, 136.

SUBGENUS **SQUATAROLA** CUVIER (Check-List, 2d ed. p. 99).

This is raised to a full genus. Hence No. 270 will stand as

270. **Squatarola squatarola** (LINN.).

Tringa squatarola LINN. S. N. ed. 10, 1758, 149.

Squatarola squatarola CUV. Règne Anim. I, 1817, 467.

[322.] **Geotrygon martinica** (LINN.). This becomes

Geotrygon chrysis BONAP.

Geotrygon chrysis BONAP. Consp. Av. II, 1854, 72.

Geotrygon martinica (LINN.) is restricted to the Lesser Antilles. *G. chrysis*, a very different species, occurs in Cuba, Haiti, the Bahamas, and on the Florida Keys. (Cf. SALVADORI, Cat. Bds. Br. Mus. XXI, 1893, pp. 570-572.)

394b. **Dryobates pubescens oreocercus** BATCH. This becomes
Dryobates pubescens homorus (CAB.).

Dryobates homorus CABANIS, Mus. Hein. pt. iv, 1863, 65.

Dryobates pubescens homorus RIDGW. Man. N. Am. Bds. 2d ed. 1896, 597.

422. **Cypseloides niger** (GMEL.). This becomes

Cypseloides niger borealis (KENNERLY).

Cypselus borealis KENNERLY, Proc. Ac. Nat. Sci. Phila. 1857, 202.

Cypseloides niger borealis DREW, Auk, II, Jan. 1885, 17.

[B 108, part, C 270, R 350, part, C 404.]

GEOG. DIST.—Rocky Mountain region (Colorado), west to the Pacific coast; north to British Columbia, and south to Lower California, Mexico, and Costa Rica.

453. **Myiarchus mexicanus** (KAUP). The second reference under this species should be

Myiarchus mexicanus LAWRENCE, Ann. Lyc. N. Y. IX, May, 1869, 202 (as in the orig. ed. of the Check-List). (Cf. COUES, Auk, XIV, Jan. 1897, 92.)

- * 465 **Empidonax acadicus** (GMEL.).

Acadian Flycatcher.

This has become

Empidonax virescens (VIEILL.).

Green-crested Flycatcher.

(Cf. BREWSTER, Auk, XII, Apr. 1895, 157. . Also Check-List, 2d ed. 1895, p. 188.)

- * 466. **Empidonax pusillus** (SWAINS.).

Little Flycatcher.

This has become

Empidonax traillii (AUD.).

Traill's Flycatcher.

(Cf. BREWSTER, Auk, XII, Apr. 1895, 159. Also Check-List, 2d ed. 1895, 188.)

- * 466a. **Empidonax pusillus traillii** (AUD.).

Traill's Flycatcher.

This has become

Empidonax traillii alnorum BREWST.

Alder Flycatcher.

(Cf. BREWSTER, Auk, XII, Apr. 1895, 161. Also Check-List, 2d ed. 1895, 188.)

- 474j. **Otocoris alpestris pallida** TOWNSEND. The authority should be DWIGHT, and the reference changed to

Otocoris alpestris pallida DWIGHT (ex TOWNS. MS.), Auk, VII, Apr. 1890, 154. (Cf. STONE, Auk XIII, Apr. 1896, 185, and ALLEN, *ibid*, 188.)

- 498a. **Agelaius phoeniceus sonoriensis** RIDGW. This becomes

Agelaius phoeniceus longirostris (SALVAD.).

Agelaius longirostris SALVAD. Atti del Reale Accad. Sci. Torino, IX, Apr. 26, 1874, 632.

Agelaius phoeniceus longirostris RIDGW. Man. N. Am. Bds. 2d ed. 1896, 370.

The name *longirostris* SALVADORI (1874) antedates *sonoriensis* RIDGWAY (1887). (Cf. RIDGWAY, *l. c.*)

499. **Agelaius gubernator** (WAGL.). This becomes

Agelaius gubernator californicus NELSON.

Agelaius gubernator californicus NELSON, Auk, XIV, Jan. 1897, 59.

[B 402, *part*, C 212a, *part*, R 216a, *part*, C 317, *part*.]

- 567b. **Junco hyemalis shufeldti** COALE. This becomes

Junco hyemalis connectens COUES.

Junco hiemalis connectens COUES, Key N. Am. Bds. 2d ed. 1884, 378 (and later eds.); Auk, XIV, Jan. 1897, 94. (Cf. COUES, Auk, *l. c.*)

568. **Junco annectens** BAIRD.

Pink-sided Junco.

- 568.1. **Junco ridgwayi** MEARNs.

Ridgway's Junco.

Junco ridgwayi MEARNs proves to be a synonym of *Junco annectens* BAIRD, but not the *J. annectens* of recent authors and of the Check-List, while the species commonly known as *J. annectens* requires a new name. (Cf. RIDGWAY, Auk, XIV, Jan. 1897, 94.)

Hence Nos. 568 and 568.1 will stand as follows :

568. **Junco mearnsi** RIDGWAY.

Pink-sided Junco.

568.1. **Junco annectens** BAIRD.

Ridgway's Junco.

GENUS **ARREMONOPS** RIDGWAY.

Arremonops RIDGW. Man. N. Am. Bds. 2d ed. 1896, 434.
Type, *Embernagra rufivirgata* LAWR.

586. **Embernagra rufivirgata** LAWR. hence becomes
Arremonops rufivirgata (LAWR.).

Embernagra rufivirgata LAWR. Ann. Lyc. N. Y. V, May, 1851,
112, pl. v, fig. 2.

Arremonops rufivirgata RIDGW. Man. N. Am. Bds. 2d ed.
1896, 435.

GENUS **OREOSPIZA** RIDGWAY.

Oreospiza RIDGW. Man. N. Am. Bds. 2d ed. 1896, 439.
Type, *Fringilla chlorura* AUD.

590. **Pipilo chlorurus** (TOWNS. = AUD.) hence becomes
Oreospiza chlorura (AUD.).

Fringilla chlorura AUD. Orn. Biog. V, 1839, 336.

Oreospiza chlorura RIDGW. Man. N. Am. Bds., 2d ed., 1896,
605.

The authority for the specific name should be AUDUBON and not TOWNSEND, in accordance with the rule followed by the Committee in other similar cases in the revised edition of the Check-List. (Cf. STONE, Auk, XIII, Apr. 1896, 185; ALLEN, *ibid.* 188).

594. **Pyrrhuloxia sinuata** BONAP. This becomes

594a. **Pyrrhuloxia sinuata texana** RIDGW.

Texas Pyrrhuloxia.

Pyrrhuloxia sinuata texana RIDGW. Auk, XIV, Jan. 1897,
95.

[B 389, *part*, C 202, *part*, R 243, *part*, C 298, *part*.]

GEOG. DIST.—Southern border of the United States, from the valley of the Lower Rio Grande, south to San Luis Potosi, Puebla, etc. North casually to the coast of Louisiana.

594a. **Pyrrhuloxia sinuata beckhami** RIDGW. This becomes

594. **Pyrrhuloxia sinuata** BONAP.

Arizona Pyrrhuloxia.

The references stand as at present under No. 594, but the concordance and GEOG. DIST. require to be changed, as follows:

[B 389, *part*, C 202, *part*, R 243, *part*, C 298, *part*.]

GEOG. DIST.—Southern Arizona, east to western Texas, and south into western Mexico.

GENUS **Habia** REICH. (Check-List, 2d ed. p. 250). This becomes

GENUS **ZAMELODIA** COUES.

Zamelodia COUES, Bull. Nutt. Orn. Club, V, Apr. 1880, 98.

Type, *Loxia ludoviciana* LINN. (Cf. COUES, Auk, XIV, Jan. 1897, 39-42.)

Hence the following:

595. **Habia ludoviciana** (LINN.). This becomes

Zamelodia ludoviciana (LINN.).

Loxia ludoviciana LINN. S. N. ed. 12, I, 1766, 306.

Zamelodia ludoviciana COUES, Bull. Nutt. Orn. Club, V, Apr. 1880, 98.

596. **Habia melanocephala** (SWAINS.). This becomes

Zamelodia melanocephala (SWAINS.).

Guiraca melanocephala SWAINS. Philos. Mag. I, 1827, 438.

Zamelodia melanocephala COUES, Bull. Nutt. Orn. Club, V, Apr. 1880, 98.

645. **Helminthophila ruficapilla** (WILS.). This becomes

Helminthophila rubricapilla (WILS.).

Sylvia rubricapilla WILS. Amer. Orn. VI, 1812, 15.

Helminthophila rubricapilla FAXON, Auk, XIII, July, 1896, 264.

Sylvia rubricapilla WILS. (1810), is preoccupied by *Sylvia rubricapilla* LATH. (1790) = *Dendroica rubricapilla* (LATH.). (Cf. FAXON, *l. c.*)

645a. *Helminthophila rubricapilla gutturalis* RIDGW. hence becomes

***Helminthophila rubricapilla gutturalis* (RIDGW.).**

Helminthophaga rubricapilla var. *gutturalis* RIDGW. in Hist. N. Am. Bds. I, Jan. 1874, 191.

Helminthophila rubricapilla gutturalis FAXON, Auk, XIII, July, 1896, 264.

658. *Dendroica cærulea* (WILS.). This becomes
***Dendroica rara* WILS.**

Sylvia rara WILSON, Am. Orn. III, 1811, 119, pl. 27, fig. 2.

Dendroica rara RIDGWAY, Auk, XIV, Jan. 1897, 97.

Sylvia cærulea WILSON (1811) is preoccupied by *Sylvia cærulea* LATHAM (1790) = *Polioptila cærulea* (LINN.). (Cf. RIDGWAY, *l. c.*)

*714. *Heleodytes affinis* (XANTUS). This has become

713b. ***Heleodytes brunneicapillus affinis* (XANTUS).**

(Cf. ANTHONY, Auk, XII, July, 1895, 280. Also Check-List, 2d ed. 1895, 296).

719b. *Thryothorus bewickii bairdi* (SALV. & GODM.). This becomes

***Thryothorus bewickii leucogaster* BAIRD.**

Thryothorus bewickii leucogaster BAIRD, Rev. Am. Bds. Aug. 1864, 127.

Changed on the ground that a prior *Troglodytes leucogaster* GOULD (1836 = *Hemiura leucogastra*) does not preclude the use of the name *leucogaster* in the genus *Thryothorus*. (Cf. COUES, Auk, XIII, Oct. 1896, 345.)

- 726a. ***Certhia familiaris alticola* MILLER.** This becomes
***Certhia familiaris albescens* (BERLEPSCH).**

Certhia mexicana albescens BERLEPSCH, Auk, V, Oct. 1888,
450.

Certhia familiaris albescens OBERHOLSER, Auk, XIII, Oct. 1896,
315.

739. ***Parus cinctus obtectus* (CAB.).** This becomes
***Parus cinctus alascensis* (PRAZAK).**

Pecila cincta alascensis PRAZAK, Orn. Jahrb. VI, March-April,
1895, 92.

- 766a. ***Sialia sialis azurea* (SWAINS.).** The authority should be
changed to BAIRD, as given in the first reference under this
name in the Check-List, 2d ed. p. 322. (But "1884" in the
reference should be 1864.) (Cf. RIDGWAY, Man. N. Am. Bds.
1887, 581.)

III.—CONSIDERED AS NOT ENTITLED TO RECOGNITION.

***Callipepla gambelii deserticola* STEPHENS,** Auk, XII, Oct.
1895, 371.

Considered as not separable from *Callipepla gambelii* (GAMB.).

***Bubo virginianus occidentalis* STONE,** Auk, XIII, Apr.
1896, 155.

Not admitted, on the ground that the type, from Mitchell
County, Iowa, proves to be an intergrade between *B. virginianus*
and *B. v. arcticus*, and not the interior form which Mr. Stone in-
tended to recognize.

***Melanerpes formicivorus aculeatus* MEARNs,** Auk, VII,
July, 1890, 249. (Cf. Third Supplement A. O. U. Check-List, in
Auk, Jan. 1891, 88, and RIDGWAY, Man. N. Am. Bds. 2d ed. 1896,
597). This is now referred to *Melanerpes formicivorus* (SWAINS.).
(Cf. *antea*, p. 120.)

Otocoris alpestris hoyti BISHOP, Auk, XIII, April, 1896, 130.

Considered as not sufficiently distinct from *Otocoris alpestris leucolæma* (COUES).

Junco danbyi COUES, Nidologist, III, Oct. 1895, 14.

Proves to have been based on immature examples of *Junco aikeni* RIDGW. (Cf. COUES, Auk, XIV, Jan. 1897, 94.)

Minus [*sic*] **carolinensis grisifrons** [*sic*] MAYNARD, Bds. East. N. Am. pt. 40 [1896], 710.

The alleged character of gray frontlet is not distinctive, being of frequent occurrence in *Galeoscoptes carolinensis* from any locality.

IV. PROPOSED CHANGES OF NOMENCLATURE REJECTED.

92. **Puffinus auduboni** FINSCH, *vs.* **Puffinus obscurus** (GMEL.). Cf. SALVIN, Cat. Bds. Br. Mus. XXV, 1896, 382.

Change not required, the two names representing, in the opinion of the Committee, two sufficiently distinct birds.

Genus **Aythya** BOIE, *vs.* **Nyroca** FLEMING. Cf. SALVADORI, Cat. Bds. Br. Mus. XXVII, 1895, 334.

Aythia is rejected by SALVADORI because not defined.

Genus **Actitis** ILLIGER, 1811, *vs.* **Tringoides** BONAP. 1831. Cf. SHARPE, Cat. Bds. Br. Mus. XXIV, 1896, 456.

The type of *Actitis* is, by elimination, *Tringa hypoleucos* LINN., which is also the type of *Tringoides*, of much later date.

236. **Tringa couesi** (RIDGW.), *vs.* **Arquatella maritima couesi** (RIDGW.). Cf. SHARPE. *l. c.*, 583.

243a. **Tringa alpina pacifica** COUES, *vs.* **Tringa americana** (CASSIN). Cf. SHARPE, Cat. Bds. Br. Mus. XXIV, 1896, 608.

Tringa alpina, var. *americana* CASSIN (1858) is antedated by *Tringa americana* BREHM (1855 = *Tringa fuscicollis* VIEILL.).

374a. **Megascops flammeola idahoensis** MERRIAM *vs.* **Megascops idahoensis**. Cf. WM. PALMER, Nidologist, III, May, 1896, 103.

After careful reconsideration of the case, it was decided not to change the status of the bird as now recognized in the Check-List.

375 a. **Bubo virginianus subarcticus** (HOY).

This proves to be a synonym of *Bubo virginianus arcticus* (SWAINS.). (Cf. STONE, Auk, XIII, Apr. 1896, 153-156.)

378a. **Speotyto cunicularia floridana** RIDGW. *vs.* **Speotyto floridana**. Cf. WM. PALMER, Auk, XIII, April, 1896, 108.

An examination of a large amount of material from Florida and from the central and western parts of North America shows that while the Florida form, as at present known, is geographically isolated from that of the Great Plains and the western United States at large, the differences between the two forms are so slight and inconstant that the relationship of the Florida form to the western one is most satisfactorily expressed by the use of a trinomial, as in the Check-List.

Genus **Lucar** COUES *ex* BARTRAM (Cf. COUES, Auk, XIV, Jan. 1897, 97.)

Rejected as being not only practically a *nomen nudum*, but as debarred under Canons XLIV and XLV of the A. O. U. Code, which require that names shall be identifiable by the contemporary literature of the subject.

Many proposed changes of names not here formally treated are covered by the following resolution, adopted by the Committee at its session in Cambridge, Nov. 13, 1896.

“*Resolved:* That changes of names from those adopted in the Check-List, due to taking the 12th instead of the 10th edition of Linnæus's ‘Systema Naturæ’ as the starting point for the law of priority, do not require consideration by this Committee.”

This has especial relation to cases occurring in Vols. XXIV, XXV, and XXVII of the ‘Cat. Bds. Brit. Mus.’

V. CASES DEFERRED.

86a. *Fulmarus glacialis minor* (KJERR. vs. *Fulmarus glacialis*. Cf. SALVIN, Cat. Bds. Brit. Mus. XXV. 1896. 425.

86b. *Fulmarus glacialis glupischa* STEJS. vs. *Fulmarus glacialis*. Cf. SALVIN, *l. c.* 427.

86c. *Fulmarus glacialis rodgersi* (CASS. vs. *Fulmarus glacialis*. Cf. SALVIN, *l. c.* 427.

Fulmarus glacialis columba ANTHONY. Auk. XII. 1895. 372.

85. *Puffinus borealis* CORY vs. *Puffinus kukli* (BOER). Cf. SALVIN *l. c.* 375.

94. *Puffinus stricklandi* RIDGW. vs. *Puffinus griseus* (GMEL.). Cf. SALVIN, *l. c.* 386.

148. *Aythya marila nearctica* STEJS. vs. *Aythya marila* LINS. Cf. BISHOP. Auk. XII. July. 1895. 293.

Oidemia carbo (PALLAS). Reported as occurring in Alaska. Cf. SALVADORI. Cat. Bds. Br. Mus. XXVII. 1895. 412.

277a. *Ægialitis meloda circumcincta* RIDGW. vs. *Ægialitis meloda* (ORD). Cf. SHARPE, Cat. Bds. Br. Mus. XXIV. 1896. 294.

Speotyto cunicularia obscurus STEPHENS. Auk. XII. Oct. 1895. 372.

Dryobates villosus montanus ANTHONY. Auk. XIII. Jan. 1896. 32.

While this subspecies is admissible, the tenability of the name *montanus* is in question.



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COLOR-CHANGE IN THE BOBOLINK.

THE AUK:

A QUARTERLY JOURNAL OF
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VOL. XIV.

APRIL, 1897.

NO. 2.

THE SPRING PLUMAGE OF THE BOBOLINK, WITH REMARKS ON 'COLOR-CHANGE' AND 'MOULTING.'

BY ARTHUR C. CLAD GUNN, M.D.

Plate 12.

It is well to note "On the Spring Plumage of the Bobolink,"¹ Dr. Allen has apparently overlooked a recent publication, XI, 1894, p. 100, which shows that the change to breeding dress is not always accompanied by an increased feather-loss, nor in this case at least was new feather-growth evident. In short there seems to have been not even a 'partial moult,'² and hence the individual feathers must have changed in color.

My own experience with captive Bobolinks confirms the above statement, but unfortunately of three Bobolinks kept during the winter of 1894-5, only one proved to be a male, while six males

¹ Read before the Nuttall Ornithological Club, May 10, 1896.

² Bull. American Museum Nat. Hist., VIII (March 18, 1895), pp. 43-4.

In regard to paper the word 'moult' is to be understood in its broad sense, and not about the time of the renewal of the plumage; there is an increase in the growth of the feathers, an evident growth of pinfeathers, which may be called 'partial moult,' *partial moult, pinfeather growth, and color change.*



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THE SPRING PLUMAGE OF THE BOBOLINK, WITH
REMARKS ON 'COLOR-CHANGE' AND
'MOULTING.'¹

BY ARTHUR P. CHADBOURNE, M. D.

Plate Ia.

IN a recent note 'On the Spring Plumage of the Bobolink'² Dr. Allen has apparently overlooked a record (Skillen, Auk, XI, 1894, p. 180), which shows that the change to breeding dress is not always accompanied by an increased feather-loss, nor in this case at least was new feather-growth evident. In short there seems to have been not even a 'partial moult,'³ and hence the individual feathers must have changed in color.

My own experience with captive Bobolinks confirms the above statement; but unfortunately of three Bobolinks kept during the winter of 1894-5, only one proved to be a male, while six males

¹ Read before the Nuttall Ornithological Club, May 17, 1896.

² Bull. American Museum Nat. Hist., VIII (March 18, 1896), pp. 43, 44.

³ In the present paper the word 'moult' is to be understood as meaning that during or about the time of the renewal of the plumage, there is an *increased* shedding of the feathers, an evident growth of 'pin-feathers,' or both combined; but it *implies nothing as to feather-color and color-change.*

taken in June 1895, escaped by tearing a hole in the cloth top of the cage. However, through the kindness of Messrs. Allen, Batchelder, Brewster, Merriam, and others, I have been able to compare a series of more than 175 male Bobolinks, probably covering about the same localities and dates as the material used by Mr. Chapman in the preparation of his articles on this subject.¹ Among the skins loaned by the American Museum of Natural History was the specimen from Corumbá, Brazil, on which the hypothesis was originally based *that the black and white dress was entirely due to 'moulting' without any 'color-change' in the individual feathers.* The assumption being that 'moulting' is conclusive proof of the absence of any color-change,—a supposition which has been frequently used by writers on this subject, but one which is absolutely without proof of its correctness as yet, while it is shown to be untenable by examination of the Corumbá bird, as will appear later.

First as to my pet Bobolink, which was kept from January until the breeding plumage was complete : — The bird always seemed well and strong, and the *color-change was NOT accompanied by any increase in feather-loss, i. e.,* not greater than during the winter and often for several days in succession there were no cast-off feathers at all to be found. The total during the three weeks that the change was in progress was *thirteen*,—namely two broken rectrices and eleven contour feathers. It is hardly possible that any stray specimens were unnoticed, for even had they fallen outside of the cage they would have been found in the room, and a wire netting protected the window. 'Pin-feathers' could hardly have been overlooked, if present; for I often held the bird in my hand and carefully examined it, blowing back the plumage until the skin could be seen. It is also safe to say, doubtless, that the cast-off feathers were not eaten by the bird itself. Hence it follows that unless the previous plumage was made up of only two tail and eleven body feathers, both of the former on the same side,—which was certainly not the case,—*my Bobolink was unquestionably an instance of color-change in the plumage without 'moult.'*

¹ Cf. Auk, VII, 1890, pp. 120-124; also *ibid.*, X, 1893, pp. 339-341.

The possibility of a spring 'moult' being entirely overlooked is worth considering at this point. If we assume for the moment that none of the old feathers change to the color of the breeding dress, and that all which are unlike those of the preceding plumage, have replaced old feathers already 'moulted,' can we then form any idea of the loss during the development of the spring dress of the male Bobolink? In other words, how many feathers would a Bobolink lose during a *complete* 'moult'? I have tried to estimate this approximately in a male Bobolink, killed May 30, by carefully pulling out, one by one, all the contour feathers from the two ventral feather-tracts, including the 'inner lateral,' but neither the 'humeral' nor the 'gular tracts' of Nitzsch;¹ and then gluing each separately on sheets of paper. Both my patience and mucilage gave out by the time I had finished the sheets in question,—about one third of the under parts of the bird.² The contour feathers on the sheets amounted to 439 in all, none of which, judging from their color alone, could have formed a part of the winter dress. The feathers on the upper breast, neck, and throat are smaller, and must be relatively more numerous; and it is certainly safe to estimate the total loss from the abdomen, breast, and throat, at three times actually counted, making the total 1317. The back and upper parts must increase this number by at least one half; and *the hypothesis of a 'moult without color-change' would therefore imply a loss of 2634 feathers for the development of the full spring plumage of the male Bobolink.*

If the process lasted from three to six weeks — (it was three weeks from the time the first black spot appeared, until the full plumage of my Bobolink has been attained by color-change

¹ Pterylographia. (English translation by Sclater.) Publications of the Ray Society, London, 1867, p. 26, seq.

² It will be noticed that in this estimate the plumage of the head, wings, legs, and tail has not been included. The flight feathers, because they are often broken accidentally, and cast off by cage-birds when not 'moulting'; those of the head and legs, because they are so small as to be easily overlooked; while by omitting the remainder of the wings and tail, and counting the total loss from the upper parts as only one half that from the gastræum, my result must be an underestimate.

alone),—there would be *between 115 and 57 additional cast-off feathers in or near the cage each day.* It is hardly supposable that anyone at all interested in the question of a spring 'moult' could fail to detect its presence with such evidence daily before him during at least three weeks.

In the living bird, accurate data of the loss before and during the progress of a complete 'moult,' are, I believe, unpublished, for any of our native species certainly none are known to me for the Bobolink; and as my bird did not 'moult,' it is impossible to supply the deficiency. But the record of a pair of tame Screech Owls (*Megascops asio*), shows well how sudden may be the onset, and how great the loss during the period of a complete feather-change; and it will also be noticed, that in this,—the only species of which we have exact data,—the total number of loose feathers *found* while the change was most active, exceeds our *theoretical* estimate based on the skin of the Bobolink.

AVERAGE NUMBER OF FEATHERS FOUND PER OWL.¹

From July 24 to July 31 — ave. daily $\frac{1}{2}$ feather.

" August 1 to Aug. 7 — ave. daily 5 feathers.

" Aug. 8 to Aug. 31 — ave. daily $9\frac{1}{2}$ feathers.

" September 1 to Sept. 30 — ave. daily 9 feathers.

" October 1 to Oct. 28 — ave. daily $9\frac{1}{2}$ feathers.

" " 29 to Nov. 2 — ave. daily $9\frac{3}{4}$ feathers.

" November 3 to Nov. 30 — ave. daily $90\frac{1}{2}$ feathers, varying between 81 and 95.

From December 1 to Dec. 7 — ave. daily $17\frac{1}{2}$ feathers.

" " 8 to Jan. 11 — ave. daily 4 feathers.

During the time that 'moulting' was most active,—namely from Oct. 29 to Nov. 30,—a total of 2806 feathers were actually *found*² for each of the two Owls; yet their cage was much of the time out of doors and exposed to the wind, while being made of

¹As there were two Owls, the numbers given are one half the feathers actually found in the cage.

²It may be well to state here that almost without exception the cast-off feathers were practically without any brown or tawny shades, though the bird was in well marked intermediate plumage; while the feathers in which there was considerable brownish, usually showed some mechanical injury, on careful examination.

half inch wire netting, some of the smaller specimens were doubtless blown away and lost, which could not have occurred in the case of the Bobolink. I was curious to know how closely the number of feathers of the 'Scops' agreed with that of the Bobolink, and therefore counted the corresponding pteryx of the Owl in the way already described. The agreement was unexpected: — the Owl having 501 feathers on the sheets, and an estimated total of 3006 as needed for a complete 'moult'; contrasted with 439, and 2634 of the Bobolink.

Even Dr. Allen's note itself furnishes additional proof that a spring 'moult' would not escape detection. He says: "the molt was in all stages from birds showing only here and there the tip of a black feather on the breast to those that were in nearly full breeding plumage. A large number of these were in the highest stage of molt, pin feathers being distinctly visible . . . even when the birds were several feet distant."

Again in the Corumbá bird 'moulting' was so apparent that in the illustration for 'The Auk,' it was decided to assist Nature by having the 'moult' of the wings and tail completed by the artist. A convincing proof that a 'moult' could not have been overlooked, though hardly so of scientific accuracy; especially as it was also intended to change such of the under parts as were white to black or brown, had a slight mistake not prevented!!

All the evidence at hand is therefore against the possibility of error of observation in regard to the spring 'moult' of the Bobolink; and there seems to be no reasonable doubt that the apparently contradictory statements of Allen,¹ Chapman,² Ord,³ Skillen,⁴ and others are correct, though perhaps not yet satisfactorily explained. It follows that *Bobolinks differ as to 'moulting' in spring, — one bird attaining the full plumage by a 'true color-change,' another perhaps passes through a complete 'moult,' while in a third both processes are combined.*

It is however generally taken for granted, that because a certain bird has been found 'moulting' in spring, all individuals of the

¹ *L. c.*, p. 44.

² *L. c.*, *antea*.

³ *Trans. Amer. Philos. Soc.* III (1830), pp. 292-299.

⁴ *L. c.*, *antea*.

same species must 'moult' also; but have we any proof that this is the case? None whatever! The physical condition must vary in different individuals, be they men or birds; and hence the need of new feathers and the power of producing them, must vary also; and it is certainly more probable that Nature would be guided by the condition of the individual bird, than that the rulings of modern systematists would be followed. In short *some Bobolinks 'moult' in spring, others do not.*

To return to my Bobolink:—The first black spot appeared on March 28 and consisted of a single feather, which macroscopically and microscopically, was evidently not of recent growth, the edge being quite uneven and no remains of the enveloping sheath being present. (Plate Ia, fig. 3.) Subsequent specimens were similar to it in all essential details. In some of the changing feathers the black first developed around several foci, scattered about the surface of the vane, from which the dark effect spread, until the isolated spots became confluent and the whole was the uniform black shade of the spring dress. In other examples the dark color gradually extended towards the periphery, starting from the proximal portion of true vane and medially from along the rachis.¹

In about three weeks from the time the first black feather was noticed the full black and white breeding dress of our familiar songster was complete. No chestnut was at any time seen on the breast or under parts, nor was there the white on the centre of the breast and abdomen, which is so prominent in the Corumbá bird.²

¹ As there was no feather-loss it seemed unnecessary to mark and follow up the intermediate steps through which any one feather passed; moreover, it is impossible to mark a feather without injuring it, and my previous attempts had not been encouraging. (Cf. Auk, XIII, Oct. 1894, p. 323.)

² The majority of the white feathers on the breast of the Corumbá bird showed no color except white in the vane proper—*i. e.*, exclusive of the downy parts of the feather, which were a pale slate color. Some of these white feathers were *not fully mature*, while others are more or less worn and of *old growth*. Even supposing that all the worn white feathers would have been 'moulted', those which were still immature would hardly be cast off before the time the Bobolink appears in the South when no such completely white feathers are normally found. My Bobolink showed none of this white marking on the breast or abdomen, nor did it have the chestnut shading, which is so prominent in

The buff edging of the breast feathers was never more than a narrow line, evidently owing to the absence of the long fugacious tips, which are so characteristic of the newly developed feathers, and it is therefore probable that spring males showing much buff suffusion beneath, have recently passed through a 'spring moult,' or at least through a partial 'feather-change.'

The dealer from whom I bought the bird told me, that "last fall he (the Bobolink) lost lots of feathers"; and added: "In spring Bobolinks don't often lose any feathers to speak of. Sometimes I don't believe they lose any feathers at all; and you can't see any pin-feathers either while they are getting black. But in autumn the pin-feathers stick out all over them. Once in a while though, I've seen one have a regular moult, just as they do in fall." The above was written verbatim at the time, and is further proof that *because one individual of a given species has 'moulted,' it does not necessarily follow that all individuals of that species 'moult' also.*

Turning next to the series of skins:—The only early spring material is from Corumbá, Brazil. The male already referred to (Coll. Amer. Mus. Nat. Hist., No. 32783,) taken March 1, shows new feather-growth in a marked degree; and as was pointed out by Mr. Chapman, 'moulting' was in full progress. It is however quite another matter to prove that no color-change was also going on simultaneously in any of the feathers; for *though without the loss of old feathers from the tracts concerned,—or in other words, in the absence of 'moulting,'—an alteration in color must be due to a color-change in the same feathers; yet it does NOT follow, on the other hand, that because a bird is 'moulting,' a color-change in the individual feathers—be they old or new—is thereby excluded.* In fact the Corumbá bird itself furnishes conclusive proof that just the reverse is the case; and on careful examination one finds here

the Corumbá specimen, and Dr. Allen says nothing of any similar coloring among the birds seen by him. When we call to mind the fact,—to be referred to later,—that the black of the Bobolink is really due to brown, instead of black coloring matter,—it is at once clear that the excess of chestnut and white show a lack of the normal quantity of pigmented matter; and it seems almost sure that in the Corumbá bird, we have not a normal example, but a partial albino!

and there old-growth feathers, which are black, like the breeding-dress (*cf.* fig. 1); and others of the new-growth, which are the color of the Reed-bird plumage (*cf.* fig. 2).

Male Bobolinks in autumn, after the cares of the breeding-season are over, would probably require a complete renewal of the plumage, and a color-change in the old-growth would hardly be expected to occur. Pin-feathers typical of the black summer dress can be occasionally found, however, if carefully looked for (*cf.* fig. 4), and apparently change to the color of the autumn plumage later (*cf.* fig. 5).

We have now seen that feather-change and color-change in some cases at least, do take place separately and entirely independent of each other, though the two are also often in progress at the same time. *Hence it necessarily follows that neither can be the direct cause of the other; but that color-change must be recognized as an independent process, entirely distinct from so-called 'moulting.'*

The color-changes in the feathers of the Bobolink, of which I have now I think given sufficient proof, are the less surprising, in view of the fact that the black feathers apparently contain *very little or no black coloring-matter*. Thin transverse sections through the exposed portion of the vane of black breast-feathers, when examined with a high magnifying power and a strong *white*¹ light, show that the seemingly deep black color is really due to a *brownish* pigmented material,² generally (always?) grouped superficially near the surface of the vane; to some extent also to the thickness of the part, and to the effect of the underlying structures. Thus in the black spring specimen the granules are peripheral and comparatively close together, though a smaller number are also found in the deeper parts; while in the autumn the granular

¹ The most satisfactory light I have tried for color work with the microscope is that from a clear sky, reflected from a mirror covered with a white, highly glazed paper, and hung at an angle outside of a north window.

² To show that there is a very large amount of brown coloring matter even in breast feathers of the deepest black, it is only necessary to place such a specimen between two pieces of clear glass, and hold it against a strong light. The greater part, — sometimes the whole, — of the contour portion will appear ochraceous, being brightest along the edges of the barbs and barbules, where the parts are thin. This last, however, cannot be seen without a good magnifying glass.

pigmented matter is more uniformly scattered throughout. (Compare figs. 6 and 7.)

No difference between the pigmented matter of the spring and fall feathers was detected by the usual chemical and microchemical tests, which will be described more fully in another connection.¹

RESULTS: — Summing up the more important points brought out by our study of the spring plumage of the Bobolink, we have seen that: —

1. Color-change in the individual feather is *fact, not theory*.
2. 'Color-change of the plumage without moulting' is also *fact, not theory*; and the change to breeding dress in the male Bobolink sometimes takes place without a so-called 'moult.'
3. Different individuals of the same species vary as to 'moulting' when assuming the spring plumage; and the fact that one Bobolink 'moulted' is no proof that all Bobolinks do the same.
4. The contradictory statements of writers are accounted for by this individual variation; and such statements are not to be passed over as so-called 'errors of observation.'
5. Color-change and feather-change are two distinct processes, neither being the direct cause of the other; and each occurs separately, as well as both together.
6. So-called 'moulting' (whether based on pin-feathers or on feather-loss), does not prove the absence of color-change; but to be valid, the proof must be based on the loss of all the old feathers from the tracts concerned. No such evidence has as yet been recorded.
7. Microscopically, the black and the buff feathers of the Bobolink differ only in the massing of the brown pigmented matter nearer the surface of the former; while it is more uniformly distributed in the latter. The usual tests fail to distinguish the pigmented material of the breeding from that of the fall plumage.

¹ Since the above was written, I have obtained similar proof that the Indigo Bunting (*Passerina cyanea*) also shows a like "individual variation" in regard to its spring change of plumage, — a male having developed the full breeding dress without appreciable feather-loss; while another male, which I saw several times, had a considerable number of pin-feathers, and also many cast-off feathers in the cage.

In conclusion, I wish to add a few words on the subject of 'MOULTING' in its wider application: — First, it is most important to have an exact definition of the word '*moult*,' which has often been used with very different meaning; namely, for new feather-growth, of the whole, or of a part of the plumage, for feather-loss, for complete, or slight changes of color whether caused by feather-change, by true color-change, or simply from mechanical 'wear and tear,' and the shedding of the deciduous tips. The word 'moult' is too firmly established, and too convenient to be abandoned, but its use should be restricted to *the regular seasonal feather-change*, WITHOUT REGARD TO THE COLOR OR COLORATION OF THE PARTS CONCERNED; *and when not farther qualified, the shedding of all the feathers, including the large flight feathers, should be understood.* The expressions, '*feather-loss*,' '*new feather-growth*' and '*feather-change*,' are scientifically exact, they define themselves, and are the equivalents of German terms, already in use. Why should not these, or some similar words be adopted by us.

Second: — The meaning of 'COLOR-CHANGE' would seem to be sufficiently clear, yet it has been very differently interpreted by writers on the colors of feathers; and such sentences as, "color-change, aside from the effects of exposure and fading", are often used. Moreover, as a rule, those who are sceptical on the subject of 'color-change without moult,' refuse to admit that an alteration from a darker shade to a lighter tint is an instance of a change in color. Yet obviously, the development of a lighter color may be either a *true* color-change, in the most strict sense, or it may be purely mechanical with resulting loss of substance. As applied to feathers therefore, *any perceptible departure from the former shades and tints, or from their previous distribution, is a color-change.* When used in connection with the subject of 'color-change without moult,' however, it is clearly intended to exclude alterations due to causes, acting from outside the body, and mechanically; and thus limited, A TRUE COLOR-CHANGE is *wholly, or in part due to conditions within the organism, or within the feather itself; to alterations in the coloring-matter, or in its distribution in the feather.*

Third: — FADING, as already stated, implies a gradually progressive change from a darker shade to a lighter tint, resulting from conditions external to the body.

Without a definite understanding on these points, any rational discussion of the colors and color-changes in feathers, must of necessity be both unprofitable and misleading.

SUPPLEMENTARY NOTE. — It has been suggested that an outline of the results of a more detailed study of the alterations on which changes in color in the feather depend is needed to complete the present paper.

1. *The mature feather* (*i. e.*, one which has reached full functional development), is far from being "dead and dry," "a foreign body no longer connected with the vital processes in the rest of the organism," as has sometimes been asserted; for during *its* life it receives a constantly renewed supply of fluid from the parts around it. In strong contrast to this is the really dead feather, in which this fluid matter is deficient, as for example, the majority of uninjured cast-off feathers. Some of the evidence in support of these facts may be of interest: — (*a*) The fatty or oil-like droplets on the surface of the feather can be shown by microchemical tests (staining, etc.), to be, some of them identical with the oil from the so-called 'oil-gland'; while others are totally unlike that secretion, and these latter are alone found exuding from the pores on the surface of the rami, radii, and shaft. The pores, some with drops of varying size issuing from them, show best at the distal ends of the segments of the downy rays. (*b*) In the living bird the imported fluid can be colored, *its progress noted, and the feather stained intra vitam*. Soon after death this becomes no longer possible. To see the stain the microscope is usually necessary. Call this "osmosis," "capillarity," or what you please, it is none the less a *vital process*, in that it ceases soon after death, and must be studied in the fresh feather. (*c*) The broken tips of the rays forming the vane are, when fresh, capped by a mass of the fluid, which has escaped, leaving the part immediately below the stump pale from the loss of the fluid pigmented matter. (*d*) In museum skins this fluid matter gradually dries and by its consequent increase in density, and that of the feather tissues, the colors darken; while the freshness and gloss of life disappear. (*e*) The evanescent tints of some species, — notably the fading of the rosy 'blush' of some of the Terns, soon after life is extinct is due to the drying up or escape of this fluid, while the lost tint was

due to the physical effect of structure, the shrivelling and change of form would act on the light rays, and the former colors would be lost in consequence. Comparison of specimens of *Sterna paradisæa*, *S. dougalli* and other Terns in my collection, shows that examples having the 'blush' most marked are those in which the feathers are the least dry. Absolutely fresh specimens are hardly obtainable, owing to the destruction of these birds for the demands of fashion. It is probable that the same explanation will be found to be true in the fading of other species. (f) Other substances than red pepper (*cf.* Auk, XIV, 1896, p. 33) when given with the food, also produce changes in the color of the feather and in its composition, recognizable by proper tests. This applies to other species than the Canary.

2. *Change of color in the individual feather after maturity.*—How the colors of feathers can change; the *modus operandi* of the process, has long been an ornithological stumbling block, but the explanation is, I believe, neither incredible, nor complicated, and in fact most simple and easily accounted for by well known physiological laws. It may be briefly summarized as follows:—(a) As the result of retrograde or other activity within the cells, and with or without the action of the imported fluid, new pigmented products are formed, which may be solid matter or may be in solution, but are unlike those previously present. (b) Vital conditions within the organism determine the composition of the fluid supplied to the feather, as well as the amount of the supply; and hence indirectly regulate the character of the new compounds in the feather, into which the fluid enters or which depend upon its influence. Thus at the mating season there would be an alteration in the amount and character of the fluid received by the feather, and a freshening and often a color-change quite distinct from a more or less complete feather-change, and in some cases without any associated 'moulting,' which would be a separate process, even if present.

EXPLANATION OF PLATE Ia.

(NOTE:—Figs. 1, 2, 4, and 5 were first photographed, and the prints from the negatives then colored from the original specimens; thus insuring absolute accuracy in outlines. They are about twice the natural size. Fig. 3 was outlined with a camera lucida to secure exactness, and

then colored from nature. It is a little enlarged. Figs. 6 and 7 were drawn and tinted from specimens under the microscope.

It is a pleasure to acknowledge my indebtedness to Mr. Baldwin Coolidge for the care and skill with which he has reproduced the original colors. Fig. 3 is by the author.)

Figure 1. Spring color-change without 'moult' of the feather. An old feather of the color of the spring plumage. (March 1, Brazil, Corumbá. Coll. American Mus. Nat. Hist., No. 32783.)

Figure 2. Spring 'moult' without color-change in the feather. A new-growth feather the color of the winter dress. (March 1, Brazil, Corumbá. Same skin as preceding.)

Figure 3. Spring color-change without 'moult' of the feather. The first black feather seen on my Bobolink. (March 28, cage-bird.)

Figure 4. Fall 'moult' without color-change of the feather. A new feather, but the color of the preceding plumage. (August 29, Minnesota. Coll. Amer. Mus. Nat. Hist., No. 52326.)

Figure 5. Fall 'moult' with partial color-change of the feather. A new-growth feather, showing the 'foci' of darker shade, partly obscured by the yellow of the fall dress. (August 2, New York. Amer. Mus. Nat. Hist., No. 32785.)

Figure 6. Spring feather, transverse section. From a deep black feather of the breeding dress, in its terminal third. Granules of coloring matter, chiefly massed peripherally, producing the effect of black. (May 30, Mass. Coll. A. P. C., No. 2672.)

Figure 7. Fall feather, transverse section. Like Fig. 6, but of the Reed-bird type. Granules not massed peripherally, but scattered throughout. (September 17, Mass. Coll. A. P. C., No. 3522.)

(Figs. 6 and 7 with Zeiss 4 mm. apochromat. objective, and No. 6 comp. ocular.)

REMARKS ON THE SPRING MOULT OF THE BOBOLINK.

BY FRANK M. CHAPMAN.

IN his paper on "The Spring Plumage of the Bobolink, with Remarks on 'Color-Change' and 'Moulting,'" published in this number of 'The Auk,' Dr. Chadbourne has shown that captive

Bobolinks may change from the winter or Reedbird plumage to the black, buff and white dress of the breeding male without moulting. The discovery is of such importance and has so wide a bearing upon problems connected with changes of color in the plumage of birds, that, having handled a large part of the material which Dr. Chadbourne has studied, it has seemed advisable to follow his paper with remarks upon several questions he has therein discussed.

Laying aside for a moment the fact that the change observed occurred in a caged bird, we have here for the first time a definite description of a change in the color of a bird's plumage without moult with an explanation of its cause in certain feathers. This change, it should be noted, is not due to repigmentation, or "influx of new pigment," which has so often been spoken of as an observed fact, nor even to a chemical change in the pigment, but to a redistribution in the shaft or barb of the feather, of the existing pigment. Dr. Chadbourne says: "Thus in the black spring specimen the granules are peripheral and comparatively close together, though a smaller number are also found in the deeper parts; while in the autumn the granular pigmented matter is more uniformly scattered throughout." It will be observed therefore that no vascular connection between the feather and the dermal papilla in which it is set is claimed, nor is there any evidence to show that the feather can renew itself either by repigmentation, or by a fresh growth restoring a worn or ragged feather to its perfect shape, as claimed by Herr Gütke and other theorists. It is these two theories, repigmentation and new growth in an old feather, that Dr. Allen and others have combated as physiologically impossible, and Dr. Chadbourne alone of all the advocates of color-change without moult, has shown that this change may take place by a comparatively simple process, which nevertheless accomplishes remarkable results.

In demonstrating his point Dr. Chadbourne has placed in our hands a very dangerous tool. It is evident that extreme care is necessary in conducting observations of the kind he has made, and that satisfactory results can only be obtained through continued observation of the same individual.

It is of course well known that cage-birds may moult very irregularly, and this is particularly true of Bobolinks. Dr. Allen¹ records numerous individuals moulting in the spring while Dr. Chadbourne's specimen lost practically no feathers at that season. In a bird store in New York City at this time (November) are two male Bobolinks still wearing the black breeding dress. Before admitting, therefore, that the changes which occur in the plumage of a cage-bird may also take place in birds in a state of nature, it will be well to examine that part of Dr. Chadbourne's paper relating to the specimens of wild Bobolinks he has studied. This refers largely to the Corumbá, Brazil, specimen (Am. Mus. No. 32783) figured in a previous number of this journal.² In describing this specimen,³ I have said that it was passing from the Reedbird to the black Bobolink plumage by a *complete* moult. In fact the only feathers of the old plumage remaining are the first primary and five inner secondaries of the right wing, four inner secondaries of the left wing, the primary coverts and scapularies of both wings, and some of the under wing-coverts. Old contour feathers may be found in the centre of the back and in small numbers about the head, neck, and upper breast. In all these parts the moult is in progress and these old feathers would evidently soon have been replaced by those of the new plumage. The centre of the lower breast and the centre of the abdomen are still occupied by the old plumage, the feathers of this part being, as in the adult Reedbird, white tinged with yellow. An August moulting, adult Bobolink has nearly acquired the Reedbird plumage but, as in the Corumbá bird, the feathers of the middle of the abdomen have not as yet been moulted, apparently showing that these feathers are the last to be shed.

¹ Bull. Am. Mus. Nat. Hist., VIII, 1896, p. 44.

² The Auk, X, 1893, p. 309. Dr. Chadbourne's remarks upon this plate (*antea*, p. 141) would imply that acting under my instructions, the artist had partially completed the moult of the Corumbá bird therein figured, and I must confess that my own statement regarding it would lead one to the same conclusion; but as I was not in this country when either the drawing or lithograph was made and, beyond the fact that the plate was contemplated, knew nothing whatever about it, I can hardly be held responsible for its inaccuracies.

³ The Auk, VII, 1890, p. 120.

Dr. Chadbourne has examined this Corumbá specimen, but his conclusions differ from my own. In brief, he says that the moult is not a complete one, but that certain feathers of the winter plumage have changed to the color of the breeding plumage, and that in the white area of the abdomen there are some white feathers not fully mature. He further says: "My Bobolink showed none of this white marking on the breast or abdomen, nor did it have the chestnut shading, which is so prominent in the Corumbá specimen, and Dr. Allen says nothing of any similar coloring among the birds seen by him. When we call to mind the fact, to be referred to later, — that the black of the Bobolink is really due to brown, instead of black coloring matter, — it is at once clear that the excess of chestnut and white show a lack of the normal quantity of pigmented matter; and it seems almost sure that in the Corumbá bird, we have not a normal example, but a partial albino!"

In attempting to explain the reason for this difference in Dr. Chadbourne's opinion and my own, let us first consider the question of change in the color of an old feather (figure 1 of the plate accompanying his paper). The plumage of the Reedbird, especially of adult specimens, often contains black feathers, the terminal yellow tips of which show them to be new. Dr. Chadbourne figures such a feather in his plate (fig. 1). What becomes of these feathers? In an adult male taken September 25, in Jamaica, W. I. (Am. Mus. No. 42134) nearly all the feathers of the breast and sides are so marked. The bird could not well lose them without these parts becoming featherless. There is no reason to doubt, therefore, that they are retained until the spring moult, and in my opinion it is on one of these black feathers that Dr. Chadbourne bases his statement of spring color change without moult of the feather in the Corumbá specimen, when in truth there is no evidence whatever to show that this feather was not black when it was acquired at the preceding moult.

As to the "not fully mature feathers" which Dr. Chadbourne reports finding in the white area on the lower breast and abdomen of the Corumbá bird, one of which he figures (fig. 2), I must confess that after the most careful search I have failed to

find a single new white feather in this or any part of the bird's plumage. I do find, however, new black feathers appearing, and there is in my mind, no doubt but that in due time these yellowish white feathers of the fall plumage would have been replaced by the black ones of the spring plumage.

And this brings me to Dr. Chadbourne's statement that these white feathers and a "chestnut shading" are evidence of albinism in the Corumbá specimen, neither of them being shown in his cage-bird. As for the white feathers in the abdomen, allowing for a slight fading and abrasion due to their having been worn for a longer time, they are exactly like those found in the same part of several Reedbirds in the collection of the American Museum. In other words, they appear perfectly normal and are in no way albinistic. The "chestnut shading" mentioned by Dr. Chadbourne as an evidence of albinism in the Corumbá bird, and as not shown by his cage-bird, I am unable to detect. In any event, it is obvious that the two birds are not comparable. With the exception of the white abdominal area the few old feathers remaining in the plumage of the Corumbá bird do not materially effect its color, which is that of the newly grown feathers, while Dr. Chadbourne's cage-bird was acquiring its spring dress not by moult, but by change of color in the old feathers. I think, therefore, that Dr. Chadbourne is mistaken when he states that the Corumbá bird is "apparently a partial albino," and I must again assert my belief that this bird is acquiring its breeding plumage by a *complete* moult.

Admitting this, it may be said that one moulting specimen does not prove that all wild Bobolinks moult in the spring, and, in replying to this objection, I am very glad to find that Dr. Chadbourne and myself are in accord as to what constitutes evidence of spring moult in the Bobolink. Speaking of his cage-bird he says: "The buff edging of the breast feathers was never more than a narrow line, evidently owing to the absence of the long fugaceous tips, which are so characteristic of the newly developed feathers, and it is therefore probable that spring males showing much buff suffusion beneath have recently passed through a 'spring moult,' or at least through a partial feather change." It is these tips which give the freshly moulted Corumbá bird so

singular an appearance, and they are undoubted proof of new growth.

In the Corumbá bird they form about the terminal fifth of the feather. Thus a breast feather measures, from tip to insertion, .75 of an inch, of which the buff tip occupies .15 of an inch. A feather from the same region in a June Bobolink, from which the tip has fallen, and which is further worn, measures only .50 of an inch. There can be no reason to question therefore that feathers having these tips are recently grown. I emphasize the point, for I have yet to see an April Bobolink, and I have examined numerous specimens, in which these tips were not prominent. It is, therefore, not alone upon the Corumbá specimen but upon these April birds that I base my theory of a spring moult in *Dolichonyx*. How or when a caged Bobolink may change plumage no man can predict but among wild birds there is as yet no recorded evidence that the breeding plumage is not acquired by a complete moult.

DESCRIPTIONS OF TEN NEW SPECIES OF BIRDS
DISCOVERED BY DR. W. L. ABBOTT IN THE
KILIMANJARO REGION OF EAST AFRICA.¹

BY CHARLES W. RICHMOND.

A VERY valuable collection of birds made several years ago in the Kilimanjaro region of East Africa and presented to the United States National Museum by Dr. W. L. Abbott, not only supplied to the Museum many species previously unrepresented in its collections, but contained numerous species new to science. Various causes, mainly lack of material for comparison, have prevented the correct determination of a large part of the collection, although recently, through the generosity of Mr. A.

¹ By permission of Mr. F. W. True, Executive Curator, U. S. National Museum.

Boucard, the Museum series has been greatly enriched by the addition of many African birds as well as by a large number of specimens (several thousand) from various parts of the world. In the meantime, however, the great activity shown by English and German naturalists in the ornithology of this region resulted in the discovery of many new species, among them several of those first collected by Dr. Abbott. In order to reserve for Dr. Abbott the credit of discovering a few new species in the Kilimanjaro region, it is thought best to publish with as little delay as possible descriptions of the ten species presented below, which were identified in a recent partial examination of his collection. It is hoped that a full catalogue of this very interesting collection may be given in the near future.

1. *Crithagra kilimensis*, new species.

Type.—No. 118331, U. S. N. M.; male adult, Mount Kilimanjaro, 6000 feet, August 11, 1888; Dr. W. L. Abbott, collector.

Top of head (including forehead), sides of neck, back, scapulars, rump, and upper tail-coverts almost uniform olive grayish brown (between olive and hair brown), most of the feathers with very slightly darker centres; the head slightly darker than the back, the latter and upper tail-coverts with a slight greenish wash; lores blackish, a minute supraloral white spot, only noticeable on disturbing the feathers; feathers around the eye blackish, some of them with white bases; a narrow supra-auricular streak, white, interrupted with dusky; cheeks, chin, and sides of face near base of bill blackish, the feathers with more or less concealed white at bases, except at base of chin; fore throat with some white on bases of feathers; rest of throat, chest, sides of breast, ear-coverts, and remainder of cheeks, hair brown, with a slight olive tinge; some of the feathers of chest with darker centres; centre of breast, abdomen, sides of body and flanks buff, darker on the first named, where obscurely streaked with hair brown, the streaks becoming more pronounced, broader and darker on sides of body and flanks; under tail-coverts dusky brown, broadly edged with buff; thighs dusky brown, tipped with buff; wings and tail blackish brown, each feather (except first primary and outermost tail feather) edged with greenish yellow; tertiaries with greenish white tips, mostly on outer webs; lesser wing-coverts olive green; middle coverts blackish brown, with olive green edges, and greenish white tips, forming a bar; greater coverts blackish brown, edged with greenish yellow, and tipped with greenish white, forming a second wing bar; alula and primary coverts blackish brown, narrowly edged with olive green; axillaries maize yellow;

edge of wing light olive yellow; under wing-coverts light grayish, tipped with maize yellow; inner webs of primaries on under surface grayish white. In the dried skin the bill is dark brown above, whitish below; feet and tarsi light brown. Wing, 3.25 inches; tail, 2.70; tarsus, .77; culmen, .63. A second male measures: wing, 3.28; tail, 2.75; tarsus, .76; culmen, .61. This specimen is a trifle more olive on the back, rump, and upper tail-coverts; the chest and breast are browner; buff of under parts deeper, and under tail-coverts almost wholly of this color. It was collected April 16, 1888, while the type, described above, was taken in August.

This new species finds its nearest ally in the recently described *Crithagra albifrons* Sharpe, from Kikuyu and Mount Elgon, and both species are more or less closely related to *C. burtoni* from the Cameroons. From *C. albifrons* it differs in the absence of a white band across the base of the feathers above the lores, but the various more or less concealed white markings about the upper throat, cheeks, and below the base of the ear-coverts is an indication of close relationship with that species. The chin is black in *C. kilimensis* instead of dusky gray as in *C. albifrons*; the tips of the middle and greater wing-coverts are greenish white instead of white; the tips of the greater series are not narrower than those of the median coverts. In both size and color *C. kilimensis* stands between *C. burtoni* and *C. albifrons*.

Only two specimens of this species were obtained by Dr. Abbott, the type at 6000 feet, and the other at 7000 feet. Other explorers of Kilimanjaro have apparently not observed this species.

2. *Crithagra striolata affinis*, new subspecies.

Type. — No. 118319, U. S. N. M.; male, adult, Mount Kilimanjaro, 6000 feet, June 12, 1888; Dr. W. L. Abbott, collector.

Upper surface, from forehead to rump yellowish olive, mixed with yellowish buff on nape, occiput, and to a less extent on back, all of the feathers with dark brown centres, giving a streaked appearance; centre of forehead and crown with a decided yellowish wash; sides of forehead Naples yellow, passing into buffy white on a broad superciliary streak which extends to sides of neck; lores, feathers around eye, ear-coverts, cheeks, and a line from gape to ear-coverts brownish olive; line above cheeks, and a spot at base of upper mandible and under eye buffy white, tinged with yellow; throat buffy white, with a pronounced wash of wax yellow; sides of neck pale buff, streaked with dark brown; rest of under surface buff, much deeper on flanks; breast and sides of body conspicu-

ously streaked with dark brown; feathers of under tail-coverts with dark brown centres; thighs pale brown, with a yellowish tinge, some of the feathers indistinctly streaked; wings and tail blackish brown, the feathers (except outermost tail feather and first primary) edged with olive yellow on the outer webs; tertiaries with paler, whitish edges; lesser wing-coverts greenish olive; middle coverts blackish brown with whitish tips; greater series blackish brown, edged externally with olive yellow with whitish tips; primary coverts and alula blackish brown, narrowly edged externally with olive yellow; axillaries brownish buff, mixed with yellow; edge of wing yellow; under wing-coverts pale wood brown. Wing, 2.58 inches; tail, 2.44; tarsus, .83; culmen, .51.

Three other specimens in the collection, all females, obtained at altitudes of 5000 and 7000 feet, in April and May, 1888, and October, 1889, resemble in color and size the adult male described above, but they are slightly duller in appearance.

This form has been observed in East Africa upon several occasions and Dr. Sharpe has twice directed attention to differences between specimens from this region and Abyssinia (the type locality of *C. striolata*). He observes,¹ "the specimen from Kilimanjaro has a yellowish chin and more olive-yellow on the wing-coverts, but as some of the Abyssinian specimens also show a little of the latter colour, there is probably no real difference between birds from the two localities"; and again in his report on Mr. Jackson's collections² he writes of specimens from Mount Elgon and Kikuyu, "taken as a whole the members of the present series, as well as the Kilimanjaro birds in the British Museum, are darker than Abyssinian examples." In addition to the differences mentioned by Dr. Sharpe the Kilimanjaro birds are smaller, and I have separated them accordingly.

3. *Estrilda cyanocephala*, new species.

Type. — No. 118252, U. S. N. M.; male, adult, Useri river, near Mount Kilimanjaro, January 12, 1889; Dr. W. L. Abbott, collector.

Whole head, breast, sides of body, rump, upper tail-coverts and tail nile blue, somewhat darker on the inner webs of the tail feathers; nape, back, scapulars, wing-coverts, and sides of neck wood brown; wings ashy brown, edged with wood brown; lower breast, abdomen, under tail-coverts,

¹ Catalogue of Birds Brit. Mus., XII, 1888, 364.

² Ibis, 1891, 258.

thighs, axillaries, and under wing-coverts cinnamon buff; edge of wing nile blue. "Bill and irides red." Wing, 2.08 inches; tail, 2.14; tarsus, .58; culmen, .36.

This species is closely related to *E. angolensis*, but the entire head is blue; the brown of the upper surface and wings is darker, and the abdomen and under tail-coverts are of a deeper color.

A second specimen in the collection, also an adult male, was collected on the plains east of Kilimanjaro, October 5, 1888.

4. *Cinnyris nectarinioides*, new species.

Type. — No. 118227, U. S. N. M.; male, adult, Plains east of Mount Kilimanjaro, October 1, 1888, Dr. W. L. Abbott, collector.

Entire head, neck, back, rump, and lesser wing-coverts metallic brassy green; upper tail-coverts metallic steel blue; lower throat narrowly edged with metallic deep blue; breast with a broad band of orange-vermilion; yellow pectoral tufts present; abdomen, under tail-coverts, wings and wing-coverts (except least), under wing-coverts, and tail, black, the latter with the feathers (central ones particularly) edged with purple basally, and with green on terminal half. Bill, feet, and tarsi black in dried skin. Wing, 2.03 inches; tail 1.47; narrow central feathers, 2.25; tarsus, .60; culmen, .70.

Another adult male, obtained October 22, 1888, at Aruscha-wa-chini, southwest of Kilimanjaro, measures: wing, 2.07 inches; tail, 1.47 (central pair of feathers narrow but not fully grown); culmen .72.

This specimen agrees very closely with the type, but the greater wing-coverts are narrowly edged with metallic green.

This species seems to be related to *C. mariguensis*, or to one of its subspecies, but differs from all of them in the possession of moderate yellow pectoral tufts, and in the very narrow long central tail feathers, which project three quarters of an inch beyond the rest of the tail.

Captain Shelley has called attention to an occasional tendency in *C. mariguensis* to the development of long central tail feathers, but in the specimen observed by him the central feathers were only 0.15 inch longer than the rest of the tail, while in the present case they are fully 0.75 inch.

5. *Amydrus ? dubius*, new species.

Type. — No. 118112, U. S. N. M.; female, adult, Taveita, East Africa, August 17, 1888; Dr. W. L. Abbott, collector.

Entire head, nape, rump, upper tail-coverts, and whole under parts slate gray, with a slight greenish purple gloss; feathers of rump. and upper tail-coverts with blackish centres; lores and a narrow ring around eyes black; thighs blackish; back and scapulars glossy purplish black. with a slight bronzy wash; wings and tail black; primaries with the greater part of the inner webs cinnamon rufous, and a narrow line along the outer web, next the shaft, of the same color, but not visible externally when the wing is closed; wing-coverts black, like upper surface of wing: lesser coverts a trifle more glossy; under wing-coverts and axillaries like under surface of body but without gloss; edge of wing black. Wing, 3.85 inches; tail, 3.07; tarsus, .80; culmen, .73; width of bill at base, .38; length of first primary (exposed portion), .70. "Irides light yellow."

A single specimen of this interesting bird was obtained by Dr. Abbott. It is referred with some doubt to *Amydrus*, since it differs from the known species of this genus in its small size, circular nostrils, and concealed (instead of exposed) rufous of the wings. It has been carefully compared with descriptions of related genera, but differs from the majority of them in having the wings longer than the tail. This last character is apparently all that separates it from Cabanis's *Myiopsar*¹ [= *Paeoptera*]. In describing his *Myiopsar cryptopyrrhus*, Dr. Cabanis expressly states the tail to be longer than the wing and to resemble that of *Calornis metallica*; also that the nostrils are small, round and open. Dr. Sharpe, however, in a note² on *Paeoptera lugubris*, redescribes the birds after an examination of the type, and gives measurements ("wing 3.5, tail 3.3") which indicate exactly the opposite state of affairs. It is quite possible a typographical error has crept into the figures given by Dr. Sharpe. This ornithologist considers *P. lugubris* and *P. cryptopyrrhus* to be very distinct, but I am unable to find the latter in Shelley's 'Birds of Africa.'

In some respects *Amydrus dubius* resembles a diminutive *A. walleri*; the gray of the head is quite similar, but a trifle lighter, and with a slight purplish rather than a greenish gloss; the bill, much smaller than in *walleri*, of course, is of very much the same shape, but the culmen is less keeled, and the nostrils are small and circular; the subterminal notch on the maxilla is as far from

¹ Journal für Ornithologie, 1876, 93.

² Proc. Zool. Soc. Lond., 1878, 804.

the tip as in *A. walleri*, thus being proportionally more distant than in that species.

The rectal bristles are weak; first primary quite pointed; rufous color on under surface of wing occupies almost exactly the same area as in *A. walleri*, but on the second primary the inner half of the inner web only is rufous; second and third primaries almost equal in length; fourth primary longest; tail considerably graduated, distance between longest and shortest feathers .60 inch. Tarsus scutellated.

6. *Pholidauges femoralis*, new species.

Pholidauges fischeri SHELLEY, Proc. Zool. Soc. Lond., 1889, 368 (Kilimanjaro, 6000 feet).

Type. — No. 118111, U. S. N. M.; male, adult, Mount Kilimanjaro, 6000 feet, June 12, 1888; Dr. W. L. Abbott, collector.

Entire upper surface (except wings and tail), sides of head and neck, throat, chest, breast (extending down to a blunt point in the centre), thighs and femoral region, black, with a purplish gloss; sides of lower breast, sides of body, abdomen, and under tail-coverts cream color, somewhat mixed on sides of breast and body with dull black; lesser and middle wing-coverts like the back; greater and primary coverts greenish black edged with a purplish gloss; wings and tail greenish black, with a slight edging of purplish on the outer webs; feathers of both wings and tail rayed or ribbed in certain lights; longer feathers of upper tail-coverts greenish black with slight purplish edges, and rayed when held in proper lights; axillaries dull blackish with a purplish gloss on some of the feathers; edge of wing glossy purplish black; under wing-coverts dull slaty black, with a purplish edging on some of the outer feathers, and a small creamy white spot formed by the tips of some of the middle ones. Length (skin), 6.75 inches; wing, 3.75; tail, 2.80; tarsus, .92; culmen, .70 (.35 from distal end of nostril); first primary (from point of insertion), .82.

This species appears to be very distinct from any one previously described. It at first occurred to me that it might be the male of *P. fischeri*, with which, indeed, Captain Shelley identifies it, but upon referring to the description and colored plate of the latter it is seen that the female of *P. fischeri* has the middle tail feathers and the inner tertiaries green, with a pronounced metallic sheen, in strong contrast with an otherwise dull plumage; the male here

described, on the other hand, has only a slight gloss on these feathers. It is hardly probable the female of *P. fischeri* is more brilliant in any portion of its plumage than the male. In size the present species agrees very closely with the female of *P. fischeri*, but for that matter it is of nearly the same size as *P. leucogaster*, with which it is only distantly related. It is structurally almost identical with the last named bird, but lacks the brilliant metallic color. Compared with a specimen of *P. leucogaster* the bills are almost precisely alike; the tails are very slightly forked; the first primary in *femoralis*, is slightly longer and more rounded at the tip; the third and fourth primaries are longest in *P. leucogaster*; the fourth and fifth in *P. femoralis*; the under tail-coverts are not as long as in *P. leucogaster*.

7. *Laniarius abbotti*, new species.

Type.—No. 119168, U. S. N. M.; male, adult, Mount Kilimanjaro, 5000 feet, October 18, 1889; Dr. W. L. Abbott, collector.

Back, scapulars, rump, upper tail-coverts, wing-coverts, and upper surface of wings and tail green (between oil and olive green), shafts of the feathers black, the secondaries and tail very slightly more olive; tail feathers, except middle pair, very narrowly tipped—mostly on the inner webs—with buffy yellow; wing feathers, except exposed upper surface, brownish black, the inner webs of all (including base of first primary) broadly edged with straw yellow, less pronounced on the tertiaries, and occupying only one-third the length of the second primary, one-half of the third, and increasing on the inner ones; axillaries and under wing-coverts canary yellow. Top of head, nape, sides of neck, and upper back, slate gray, passing somewhat gradually into the green of the back; forehead, lores, line above and below eyes, upper part of cheeks, and ear-coverts, black, passing into the gray of sides of neck, but elsewhere sharply contrasted with adjacent colors; throat, lower part of cheeks, chest, and breast, bright orpiment orange (the feathers bright yellow below the surface), passing into greenish canary yellow on the abdomen; under tail-coverts greenish-yellow like abdomen; sides of body darker; thighs greenish, like back. Length (skin), about 7.30 inches; wing, 3.50; tail, 3.42; tarsus, .97; first primary, from insertion, 1.09. Bill black; feet brownish (in skin); "irides red." The bill is injured by shot and measurements cannot be given; the under mandible, however, measures .40 inch from the mental apex. The feet and tarsi are considerably smaller than those of the few species of *Laniarius* (in its broad sense) now before me, and the first primary is decidedly shorter.

The pattern of coloration is in general so much like that of *L. multicolor* of the *Malaconotus* group (a species not accessible to me except through the colored plate in Gray's 'Genera of Birds'), that I think it must be nearly related to this species. It differs very decidedly, however, as a comparison with the above description will show.

The rectal bristles are weak; the nostrils are rounded and almost entirely hidden by the black feathers at the base of the culmen; nuchal hairs are present. The tail is slightly graduated, the difference in length between the middle and outermost rectrices being .40 inch.

One specimen only of this handsome species was obtained; it appears to be quite distinct from any known species, and it is with great pleasure that I dedicate it to Dr. Abbott, who has labored so assiduously in the last few years to increase the collections of the U. S. National Museum.

8. *Prionops vinaceigularis*, new species.

Type. — No. 118136, U. S. N. M., male, adult; Plains east of Mount Kilimanjaro, October 1, 1888; Dr. W. L. Abbott, collector.

Crest grayish white, only slightly developed; fore crown grayish white, passing into dark vinaceous-cinnamon on the hind crown, this color continuing down on sides of head over ear-coverts, narrowly over eyes to lores, and on cheeks, passing into lighter vinaceous-cinnamon on throat; the color of the cheeks, ear-coverts, superciliary line and lores mixed with white, the latter almost pure in a patch below the eyes; lower throat and rest of under parts white, this color passing up on sides of neck and over nape, where somewhat broken by a black patch continuous with that of the back; back, rump, and upper tail-coverts black, some of the feathers of the latter narrowly edged with buff; wings black, with an oblique, white bar across primaries (except the first), visible only on under side; secondaries and inner primaries tipped narrowly with brownish buff, some of the former also indistinctly edged on outer webs with the same color; wing-coverts black, some of the inner feathers of the middle and greater series tipped with white; alula and primary coverts edged and tipped with whitish buff; under wing-coverts and axillaries black; tail black, middle pair of feathers wholly so, next pair slightly notched with white at tips; three following pairs with increased white terminal notches, and outer pair wholly white on outer web, but basal two-thirds of inner web black. "Feet red; bare skin around eyes green; irides yellow." Wing, 4.02 inches; tail, 3.30; tarsus, .84; culmen, .82.

Two other specimens, females, collected at the same place. October 6, agree with the bird just described, but have a blackish instead of white spot below the eyes, and the black of the back extends up to the crown. One of these females also has a number of dusky blackish feathers scattered on the sides of the crown, and the ear-coverts are prouts brown. The iris and skin around the eye are stated to be 'yellowish green' on one of the labels.

This species seems to agree with *P. cristatus* in not having the conspicuous wing band, formed by the white edges on wing-coverts and secondaries, but I have no specimen of the latter with which to carry the comparison farther. Dr. Sharpe¹ gives the irides of *P. cristatus* as grey, while in the present species they are yellow or yellowish green.

9. *Chloropeta similis*, new species.

Type. — No. 118065, U. S. N. M.; female, adult, Mount Kilimanjaro, 10000 feet, July 29, 1888; Dr. W. L. Abbott, collector.

Upper surface of head, nape, sides of neck, back, scapulars, rump, upper-tail-coverts, lesser wing-coverts, edges of middle and greater coverts, edges of primaries and of tail feathers, and bend of wing, uniform brownish green (between olive and olive green), lighter on rump; wing and tail feathers dark brown; outermost pair of tail feathers edged with yellowish green; under surface, including cheeks, under wing-coverts and axillaries, bright lemon yellow, deeper on bend of wing; line above lores lemon yellow; sides of face, and ear-coverts, like upper parts; sides of breast yellowish green; thighs yellow anteriorly, brownish posteriorly; sides of body with a greenish tinge; inner webs of wing feathers edged with pale buffy yellow. Wing, 2.15 inches; tail, 2.20; tarsus, .90; culmen, .59; first primary, .72.

Four specimens of this bird were collected on Kilimanjaro, at altitudes of 8000 and 10000 feet, during June and July, 1888. Its nearest relative appears to be *C. icterina*, but from this it differs in the wing formula, in smaller size, and apparently in the color of the thighs and upper parts. In *C. similis* the third primary is equal to the eighth, not to the seventh (as in *C. icterina*), nor to the sixth (as in *C. natalensis*). The fourth primary in our bird is equal to the seventh. The first primary is rather broad, and in one example is .89 inch long (exposed portion): in the type it is comparatively short.

¹ Ibis, 1891, 601.

It might naturally be thought that our bird would be *C. massaica* of Fischer and Reichenow, which comes from the base of Kilimanjaro, but this species is said to be nearly related to *C. natalensis*; it is also considerably larger than *C. similis*, and has the top of the head dark brown.

The single male collected by Dr. Abbott is not quite adult, and a female has therefore been chosen for the type.

10. *Melanobucco abbotti*, new species.

Type. — No. 117957, U. S. N. M.; female, adult, Plains of Taveita, July 22, 1888.

Entire head, nape, sides of neck, throat, breast, upper portion of abdomen, under tail-coverts, rump, upper tail-coverts, and entire tail (even concealed portion of base) white, with a faint sulphur yellow tinge on the rump, breast and upper abdomen; sides of breast, sides of body, lower abdomen, and flanks, brownish black, most of the feathers with whitish tips or triangular shaft spots of the same color. Scapulars brownish black, with whitish triangular shaft streaks; back and wings brownish black, the feathers of the former and of the wing-coverts and tertiaries faintly tipped with whitish or pale brown; thighs white, with a slight admixture of brown; under wing-coverts dark brown, with a slight mottling of white; axillaries dark brown; under surface of wings dusky brown, the inner webs of the wing feathers (except first primary) with basal half or more edged with white. Wing, 3.90 inches; tail, 2.26; tarsus, .98; culmen, 1.02.

This bird is closely related to both *M. albicauda* and *M. senex*, but differs from the former in having a white breast and white tail (even to the base), and from the latter in the blackish brown abdomen, sides of body, and scapulars. The three species appear to have the same dimensions.

NEW BIRDS FROM THE ISLANDS AND PENINSULA
OF LOWER CALIFORNIA.

BY A. W. ANTHONY.

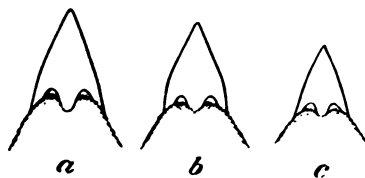
THE past summer a small collection of birds was made by the writer, assisted by Mr. Horace Gaylord, along the west coast of

Lower California, north of 27° . In advance of a more complete paper on the avifauna of this interesting region the following new species are described.

Carpodacus mcgregori, sp. nov. MCGREGOR'S HOUSE FINCH.

Sp. char.—Nearest *C. amplus* but slightly smaller, with more compressed and laterally flattened mandible, longer tail and different coloration; larger than *C. mexicanus frontalis*, bill much larger, its lateral outlines viewed from above, parallel for nearly half the length. Red colors replaced by orange tints.

Type, ad. ♂, No. 7393 coll. A. W. A., San Benito Island, Lower California,¹ Sept. 7, 1896. Above dark olive gray heavily streaked with blackish slate; rump pinkish orange; forehead, superciliary stripe, and malar region orange vermillion; chin, throat and breast lighter, approaching orange chrome; rest of lower parts whitish, heavily streaked with slaty; wings and tail dusky brown, primaries and tail-feathers edged with whitish; wing-coverts edged and tipped with buffy white. Wing, 81 mm.; tail, 73; culmen, 13; depth of bill, 11. Habitat, San Benito Islands, Lower California.



A. *Carpodacus amplus*.

B. *C. mcgregori*.

C. *C. mexicanus frontalis*

I take great pleasure in naming this very strongly marked species in honor of my friend Mr. R. C. McGregor of Palo Alto, Cal., in recognition of valuable assistance he has often rendered me. The basal third of the bill is slightly compressed laterally so that viewed from above the lateral outlines are parallel for nearly one half of the length. A series of from two to four more or less well defined grooves run from the anterior border of the nostril parallel with the culmen nearly to the commissure.

¹In a note on *Ammodramus sanctorum* (Auk, Vol. XIV, p. 92) Dr. Elliott Coues, places the San Benito Islands in the Gulf of California; their true position is about twenty miles west of Cerros Island — on the Pacific side of the peninsula — or about Lat. $28^{\circ} 20''$, and Long. $115^{\circ} 35'$.

• In a large series of *C. amplus* and *C. m. frontalis* I am unable to find either the grooved upper mandible or any approach toward parallel outlines on the basal third of the bill. The rosy colors in *mcgregori* are confined to definite areas, those of the head and rump being especially well-defined, and in none of my specimens is there any rosy suffusion over the upper parts, as is often the case with *C. frontalis*. There seems to be some variation in the intensity of the orange and rosy tints, some males being almost entirely orange over the rump, breast, and forehead, and one bird which escaped me seemed to be clear lemon yellow on those parts.

McGregor's Finch seems to be rather rare but well distributed over the island that we explored, the largest of the group of three. There is very little vegetation on this island, which is little more than a reef less than two (?) miles in extent, and it is rather surprising that a species of this genus should be found there at all.

Thryothorus cerroensis, sp. nov. CERROS ISLAND WREN.

Sp. char. — Differs from *Thryothorus leucophrys* in much shorter bill, flanks less deeply gray, and upper surface darker.

Type, No. 7391, adult, sex undetermined, coll. A. W. A., Cerros Island, Lower California, Sept. 3, 1896.

Above sepia; chin, throat, superciliary stripe and middle of breast and belly grayish white; sides of neck, breast and flanks smoke gray; under tail-coverts grayish white with a buffy tinge, barred with black; tail blackish, middle feathers barred with black and clove brown; rectrices, except middle pair, broadly tipped with cinereous. Wing, 48 mm.; tail, 55; exposed culmen, 11.5; depth of bill, 3; tarsus, 18.

The present species needs comparison with none of our western species of the genus unless it be *T. leucophrys*, from which it is very easily separated by its much shorter bill, as well as other discrepancies in size, as will be seen from the accompanying table of measurements. From specimens before me taken at Rosalia Bay, 55 miles east of Cerros Island, the new species is easily separated by much more extensively gray lower parts, less heavily barred. The lower tail-coverts, and its tail-feathers have a terminal band of gray of not less than 4 mm., whereas the mainland bird

has a semi-obsolete bar of about 1 mm. The middle rectrices are also less plainly barred in the mainland specimen, the bars becoming somewhat obsolete near the shaft.

Cerros Island Wrens were not common at any point on the island, though more were seen about the pine timber on the higher ridges. Mr. L. Belding secured specimens of the species several years ago, but owing to their poor plumage no attempt was made to separate them.

COMPARATIVE MEASUREMENTS.

	Wing.	Tail.	Culmen.	Tarsus.	Remarks.
	mm.	mm.	mm.	mm.	
<i>Thryothorus b. spilurus.</i>	52	57	12.5	17	Rosalia Bay, L. Calif.
<i>T. cerroensis.</i>	48	55	11.5	18	Type of species.
<i>T. leucophrys.</i>	55	60	16	20.5	" " "

***Harporhynchus lecontei arenicola*, subsp. nov. DESERT THRASHER.**

Subsp. char.—Differing from *H. lecontei* in upper parts being darker and grayer, tail blacker and breast gray, tail shorter (?).

Type, ♂, No. 7346, coll. A. W. A., Rosalia Bay, Lower California, Aug. 20, 1896. Above smoke gray; pileum and cervix between drab and broccoli brown; chin and belly white; throat, breast and flanks approaching drab gray; crissum buffy clay color; tail slaty black, each feather marked at tip with gray. Wing, 97 mm.; tail, 136; culmen, 31; tarsus, 30.

The region immediately back from the beach at Rosalia and Playa Maria Bays is a series of wind swept sand dunes, with scarcely any vegetation. A few hardy shrubs and yuccas struggle for existence and afford shelter for quite a number of Thrashers.

A series of sixteen was secured with little effort, though the present race well maintains the reputation of the species for shyness. On several occasions they were seen on the beach, and a few were found inland, where *H. cinereus mearnsi* was more common. They were nowhere so plenty as in the sand dunes

near the surf. Nests were found in the thickest shrubs, that were probably of the present race, proving that they are resident.

As specimens in fresh fall plumage were needed for comparison with the Lower California birds I forwarded a skin to Mr. R. Ridgway who writes me: "A specimen of the same sex of *H. lecontei* from the Mojave River, California, has a shorter wing and very much longer tail than your bird."

A comparison of my peninsula birds with a small and unsatisfactory series of typical *H. lecontei* before me, shows the latter to have a slightly longer tail (average), though the wing and other measurements are the same. An immature specimen from the collection of Mr. F. Stephens, taken fifteen miles inland from Point Lobos, Sonora, Mexico, Aug. 19, 1884, is just assuming the fall plumage, which is considerably paler than my Lower California specimens, though darker than any true *lecontei* I have examined.

A PRELIMINARY LIST OF THE BIRDS OF OKANOGAN COUNTY, WASHINGTON.

BY WILLIAM LEON DAWSON.

ANY list of the birds of this region would be unintelligible without a brief survey of the topography and physical conditions. Okanogan County, with an area almost equal to that of the State of New Jersey (being slightly under 7000 square miles), is pre-eminently a mountain county. The only really level spots in it are the narrow terraces, or benches, which mark former high levels of the Columbia and Okanogan Rivers, with their tributaries. The rest is mountains, low and grass-clad, with scattering pines along the north bank of the Columbia River, which bounds the county on the south; higher and well-timbered in the eastern and central portions; high and rugged in the extreme, with abounding glaciers, in the western part. The drainage is effected principally by five rivers: Wenatchee, Entiat, Chelan, Methow,

and Okanogan, all flowing south-east or south into the Columbia, whose high water mark here is only 600 feet above the ocean. Of these rivers, all but the Okanogan occupy narrow mountain valleys unimportant for migration. The Okanogan River, however, coming from far up in British America, and flowing due south, is a very old stream and has worn out a comparatively broad valley, a mile or so in width, along which there is a considerable movement of birds.

Of the lakes, Chelan is the most remarkable, occupying as it does, through a stretch of seventy miles, a narrow mountain fissure, varying in width from one-half to three miles. This body of water, together with the short, rapid river which drains it, furnishes a winter retreat for the hardier water-fowls, although its precipitous shores offer small inducement to the Limicolæ. Other lakes and water-filled kettle-holes abound, especially in *coulées*, — narrow, rocky defiles once scored out by glaciers. At the lower level these are often alkaline, and little frequented except by Coots and Grebes; but the mountain lakes are of the purest, and attract the Loons and Golden-eyes, while even the water-filled cirques in the highest ranges are sometimes tenanted by alpine forms.

The vegetation of the lower hills and benches, comprises bunch-grass, sage-brush, and scattering pines, while every brook or spring is eagerly surrounded by dense growths of willow, birch, poplar, syringa (*Philadelphus gordonianus*), and wild-rose. As one leaves the semi-arid foothills, and goes up Lake Chelan, and climbs the western ranges, the vegetation becomes very luxuriant, partaking largely of the character of the Puget Sound flora, and so on up to the limit of the trees. One might thus divide the county rudely into two avifaunal regions: the semi-arid, or lower levels, and the mountains proper, or higher ranges. The first division would include all well sunned river valleys, benches, rolling hills, and upland prairies, from 600 feet elevation on the Columbia to the 3500 found in some such districts as those which flank the Okanogan and Methow Rivers. The higher ranges comprise the wilder portions of the west and north, including deep, heavily wooded valleys, whose mean elevation may not really equal certain highland prairies of the semi-arid portion,

but whose faunal character is strictly determined by the enclosing mountains. Thus, Meadowlarks, in a semi-arid district of scattering pines in the center of the county, reach an elevation of 3500 feet, whereas they are not to be found in the Stehekin Valley which opens westward from the head of Lake Chelan at an altitude of only 970 feet. Again *Dendroica auduboni* and *Sitta canadensis*, which are strictly subalpine forms, range down to the water's edge at Graham Harbor—midway on Lake Chelan—whereas we should look for them in vain at twice the elevation on the hills at the foot of the lake.

A residence of fourteen months in this county, June, 1895 to August, 1896, with headquarters at Chelan, a small town at the foot of Lake Chelan, gave me a fair opportunity to study the bird life of the region, and especially since my business required me to travel over 2000 miles on horse back, to all parts except the extensive Indian reservation on the east side of the Okanogan River. In the summer of 1895 and again in 1896, trips were made to the high ranges west of Lake Chelan, Wright's Peak (alt. 9310 feet) being the objective point on both occasions, so that the list of mountain birds is fairly inclusive.

Gulls sometimes visit the lake, but the species were not learned. It is almost certain that many stragglers and rarer residents, notably Buteos and Limicolæ, are unrecorded. Okanogan County is important as representing practically the northern limit of Upper Sonoran forms, and as being the southernmost debatable ground between Pacific Slope and Rocky Mountain trinomials. How much it is affected by Puget Sound 'saturated' forms, it is at present impossible to determine, but there is here a large field for the study of transition forms.

Even such a brief survey would be incomplete without mention of the characteristically mild winter climate of this region. This is, of course, effected by the influence of the Japan Stream, so that the temperature seldom falls to zero in the lower valleys. The warm winds are, moreover, deprived of their superabundant moisture by the western mountains, so that they pass eastward warm and dry. This fact tempts many birds to winter about Chelan, who in any other longitude of their range would have to pass hundreds of miles further south to find as mild a tempera-

ture. During the winter of 1895-96, I recorded 40 species of winter residents near Chelan alone. Below I have recorded in the main list only the results of personal observations, but a few birds, not positively identified, or whose presence is strongly suspected, seemed to make necessary the addition of a small hypothetical list.

1. *Æchmophorus occidentalis*. WESTERN GREBE. — Two females were seen on Lake Chelan on May 11, and six males on the Columbia River on May 19, 1896. The harsh call note of the two sexes is very different.

2. *Colymbus holboellii*. HOLBÆLL'S GREBE. — A familiar bird in every rush-lined pond; easily distinguishable in the breeding season by its gay colors. A set of two eggs was taken June 4, on Wapato Lake, in two and a half feet of water.

3. *Colymbus auritus*. HORNED GREBE. — One bird was seen which spent the winter on the Chelan River.

4. *Urinator imber*. LOON. — Every considerable lake boasts a pair of these birds.

5. *Pelecanus erythrorhynchos*. AMERICAN WHITE PELICAN. — A specimen preserved at Lakeside was secured from a flock on Lake Chelan about five years ago.

6. *Merganser americanus*. AMERICAN MERGANSER. — Found on Lake Chelan, where they breed sparingly.

7. *Merganser serrator*. RED-BREASTED MERGANSER. — Common at Chelan, where they are found throughout the year. These birds frequent the wildest rivers, notably the Methow, and their ability to shoot the rapids while under water is amazing.

8. *Anas boschas*. MALLARD. — Everywhere the commonest of the Anatinae. It was found at Chelan in December, but probably did not remain during the actual freeze-up.

9. *Anas americana*. BALDPATE. — One flock seen and two specimens secured on Lake Chelan.

10. *Anas carolinensis*. GREEN-WINGED TEAL. — Common up to Dec. 30.

11. *Anas cyanoptera*. CINNAMON TEAL. — Two flocks were seen late in the spring near Lake Chelan.

12. *Aythya marila nearctica*. AMERICAN SCAUP DUCK. — These Ducks, with the four following, regularly winter at Chelan. They spend the nights on the lake, which almost never freezes over, but because the water of the lake is so clear and deep, they pass down early in the morning to feed in the river through the day, if unmolested. The river itself is swift except in a few places, and furnishes little vegetable matter and no shell-fish. This species sometimes flocks with the Golden-eye, and mingles regularly, in winter, with the next.

13. *Aythya affinis*. LESSER SCAUP DUCK. — Occurrence and habits as above.

14. *Clangula clangula americana*. AMERICAN GOLDEN-EYE.—The Whistlers are the characteristic Ducks of this mountain county. This species is not so common as the next, the proportion being perhaps one to three.

15. *Clangula islandica*. BARROW'S GOLDEN-EYE.—Every considerable mountain pool is visited by a pair or more of these birds during the breeding season. In winter they keep to the open lakes and rivers without passing south. Surely there can be no sound more thrilling to the gunner's ear than the clear whistling of this bird's wings, and especially if a pair produce now a single tone and now an ever changing syncopation.

16. *Charitonetta albeola*. BUFFLE-HEAD.—Common, but of more sparing distribution than the two preceding.

17. *Oidemia deglandi*. WHITE-WINGED SCOTER.—Found on Wapato Lake, a small body of water near Lake Chelan, during December.

18. *Branta canadensis occidentalis*. WHITE-CHEEKED GOOSE.—Distributed sparingly throughout the county, where it breeds, especially in the Okanogan Valley. Flocks of two or three hundred are said to have wintered at Wapato's but they did not remain this year during snow-fall.

19. *Rallus virginianus*. VIRGINIA RAIL.—Not common; breeds.

20. *Porzana carolina*. SORA.—Not common; breeds.

21. *Fulica americana*. AMERICAN COOT.—The inevitable accompaniment of 'cat-tails'. In passing along the road through Toat's Coulée, one may see the Coots sitting on their nests, or cackling at play in any of the numerous water-filled kettle-holes.

22. *Phalaropus lobatus*. NORTHERN PHALAROPE.—One specimen was secured on Wapato Lake during the migrations.

23. *Gallinago delicata*. WILSON'S SNIBE.—Only one bird was seen,—at Wapato's.

24. *Tringa minutilla*. LEAST SANDPIPER.—A flock of three was seen at the lower end of Wapato Lake, during the migrations.

25. *Totanus solitarius cinnamomeus*. WESTERN SOLITARY SANDPIPER.—Seen about large streams, notably at Stehekin, at the head of Lake Chelan, where it regularly breeds.

26. *Numenius longirostris*. LONG-BILLED CURLEW.—Not uncommon during migrations, but there is little land suitable for them. A few bred in the open country about Wapato's, while one pair on the Okanogan, chose a nesting site near the stage road, where their incessant querulous cries were poured out against every passer-by.

27. *Ægialitis vocifera*. KILLDEER.—A few were seen in early spring at Wapato's, but it is doubtful whether they lingered.

28. *Dendragapus obscurus fuliginosus*. SOOTY GROUSE.—The spring bird of the lower foothills. They appear to move down from their winter home in the fir-trees of the higher slopes, during the last week in March. At this time, and indeed until after the breeding season, they are quite

unwary. When the young are nearly full grown, the flock begins to retire slowly up the mountain side until the middle of fall, when they are to be found only on the higher ridges. Those, however, whose winter home is on the highest western ranges do not seem to have so much latitude of movement. On August 5 I encountered a brood of full grown young on Wright's Peak, at an altitude of 7000 feet.

29. *Dendragapus franklinii*. FRANKLIN'S GROUSE.—Not nearly so common a bird as the last. It does not apparently range so low as the Sooty Grouse in any given section where both are found; nor on the contrary, I suspect, is it to be found about the higher peaks. On the 28th of April, 1896, I found a nest of this bird at an altitude of about a thousand feet above Lake Chelan. The bird was a close sitter, and her seven eggs were unusually large: 1.98 by 1.83 and 1.94 by 1.35, being the measurements of two average eggs of the set.

30. *Bonasa umbellus togata*. CANADIAN RUFFED GROUSE.—The differentiation of the subspecies of the Ruffed Grouse is not at all clear in this region. In any case the range and habit of the local species is nearly like that of the eastern bird, inasmuch as it frequents copses, springs, and river-bottoms at low altitudes.

31. *Lagopus leucurus*. WHITE-TAILED PTARMIGAN.—This species is reported as not uncommon in the higher altitude. I met with them once on the barren summit of Wright's Peak, at an elevation of about 9000 feet. So far from deserving the name of 'fool hens', applied to them in the winter season, when they may be readily approached, these Ptarmigan in August were excessively afraid and absolutely unapproachable, although it is certain they had never seen a human being before.

32. *Pediocætes phasianellus columbianus*. COLUMBIAN SHARP-TAILED GROUSE.—The common bird in open situations, which yet afford copses and cover,—an invariable accompaniment of stubble-fields, and an habitué of grain-stacks. In portions of the county they are still very abundant, but where hunted they soon become extremely wary.

33. *Zenaidura macroura*. MOURNING DOVE.—Not at all common. Only one nest was found during my stay.

34. *Cathartes aura*. TURKEY VULTURE.—A scattering few are to be found, but it is doubtful whether the county boasts a score.

35. *Circus hudsonius*. MARSH HAWK.—Perhaps a dozen individuals seen.

36. *Accipiter velox*. SHARP-SHINNED HAWK. Several individuals noted.

37. *Buteo borealis calurus*. WESTERN RED-TAIL.—Based on a single specimen, preserved by Ralph Metcalf, near Silver. The Buteos are rare in Okanogan County, but must be common on the Big Bend Plateau, just across the Columbia River.

38. *Archibuteo lagopus sancti-johannis*. AMERICAN ROUGH-LEGGED HAWK.—Only one individual of this cumbrous Hawk was noted.

39. *Archibuteo ferrugineus*. FERRUGINOUS ROUGH-LEG.—Several pairs seen. I found a nest near Chelan, which was occupied by two fresh

eggs on the 10th of April. It was placed 60 feet high on a knob projecting from the face of a perpendicular cliff. The birds were arrant cowards and offered no remonstrance while their nest was being pillaged.

40. *Aquila chrysaëtos*. GOLDEN EAGLE.—Fairly common throughout the county. This Eagle is a familiar feature of our wildest mountain scenery, and is especially likely to turn up after one has killed a mountain goat. One pair breeds within 200 yards of a farmhouse near the Okanogan River.

41. *Haliaeetus leucocephalus*. BALD EAGLE.—Comparatively rare. Only three or four individuals were noted during my stay.

42. *Falco mexicanus*. PRAIRIE FALCON.—Next to the Sparrow Hawk, the commonest Raptor. One coulé in particular, which connected two large terrace tops or flats along the Columbia River, and whose walls were beetling cliffs towering a thousand feet high, sheltered half a dozen pairs of these Falcons. The favorite breeding site is some inaccessible niche in a perpendicular rock-wall, which faces some open situation. Except in places where they congregate for sport, the presence of these birds is likely to go unsuspected, until the screaming of the falconets betrays the nesting site.

43. *Falco columbarius*. PIGEON HAWK.—One specimen shot. Probably not uncommon. The relation of this bird to Richardson's Merlin was not satisfactorily determined.

44. *Falco sparverius deserticolus*. DESERT SPARROW HAWK.—Abundant on the lower foothills and in open situations. Less common in the mountains.

45. *Pandion haliaëtus carolinensis*. AMERICAN OSPREY.—Common along the Columbia River and tributary streams.

46. *Asio wilsonianus*. AMERICAN LONG-EARED OWL.—Two or three pairs will be found in any considerable swamp. Eggs were taken in April and in June.

47. *Bubo virginianus saturatus*. WESTERN HORNED OWL.—These birds were seen only at the upper end of Lake Chelan.

48. *Speotyto cunicularia hypogæa*. BURROWING OWL.—Not a characteristic bird, but still to be occasionally met with in the semi-arid and treeless portions at lower levels.

49. *Ceryle alcyon*. BELTED KINGFISHER.—Not a common bird, except on Lake Chelan where it winters.

50. *Dryobates villosus harrisi*. HARRIS'S WOODPECKER.—Not common.

51. *Dryobates pubescens homorus*. BATCHELDER'S WOODPECKER.—Materials are not at hand for the stricter determination of this subspecies. The bird is fairly common.

52. *Xenopicus albolarvatus*. WHITE-HEADED WOODPECKER.—This bird was seen only twice. The last time it was found nesting at an altitude of 3000 feet. There appears to be nothing unusual about its nesting habits, except that in this instance the eggs were all dotted with pitch,

which was probably derived from the chips at the bottom of the nest. The pitch spots were distributed with tolerable uniformity, and had become black through contact with foreign matter.

53. *Sphyrapicus ruber*. RED-BREASTED SAPSUCKER.—One specimen was shot from a fir tree on the shore of the lake.

54. *Ceophlæus pileatus*. PILEATED WOODPECKER.—Not common. Perhaps a half dozen individuals were seen.

55. *Melanerpes torquatus*. LEWIS'S WOODPECKER.—The 'Black' Woodpecker is one of the most characteristic birds of the region. It is, however, pretty closely confined to the lower levels. Every considerable dead tree in the coulées, or along the river banks, is bound to have furnished at one time or another a home for these birds.

56. *Colaptes cafer*. RED-SHAFTED FLICKER.—Common. The careless rancher still calls it 'Yellow-Hammer'.

57. *Phalænoptilus nuttallii*. POOR-WILL.—One specimen secured. This bird seems to take its insect prey on or close to the ground. It is confined to semi-arid regions in valleys and 'draws'.

58. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK.—Found sparingly in open situations.

59. *Cypseloides niger borealis*. BLACK SWIFT.—These erratic and almost uncanny creatures appeared at Chelan several times during the summer of 1895. They would come in a straggling flock at about 7 o'clock in the morning, hawking at insects as they went, but all coming from up the lake and moving eastward. I saw them only once this year, on June 9. On this occasion I saw a company of a score hunting leisurely at high noon, over the Okanogan River. In the evening of the same day a hundred or so gathered after the manner of Chimney Swifts, to gyrate in social fashion, at a point on the Columbia River, 20 miles south from the first ones observed.

60. *Chætura vauxii*. VAUX'S SWIFT. The only point in the county where these birds were noted, was at the head of Lake Chelan, where they regularly nested and roosted in the hollow limbs of dead balm trees.

61. *Aëronauts melanoleucus*. WHITE-THROATED SWIFT.—A single specimen seen while exploring the cliffs of the Columbia River gorge, seems referable to this species. It was probably a wanderer from some detached colony, recently emigrated to this northern limit of the semi-arid region.

62. *Trochilus alexandri*. BLACK-CHINNED HUMMINGBIRD.—By no means a common bird. Only two glimpses were afforded me of this nimble fay, but my conclusions are confirmed by other observers.

63. *Selasphorus rufus*. RUFOUS HUMMINGBIRD.—Abundant. In certain mountain glades, where fire-weeds abound, these Hummers fairly swarm. They were continually observed in the vicinity of the glacier on Wright's Peak, at an altitude of 8000 feet. In their search for sweets they seem to be attracted by color rather than by odor, for they repeatedly examined a bright check blanket, which a member of our party had, and seemed greatly disappointed that it did not prove to be a flower bed.

64. *Tyrannus tyrannus*. KINGBIRD. — Not nearly so common as *T. verticalis*, but of general distribution along the terraces and lake borders.

65. *Tyrannus verticalis*. ARKANSAS KINGBIRD. — Abundant. You may expect to find a vociferous pair nesting among the out-buildings of any farm-yard. At Chelan some large fir trees along the river front contained several nests apiece.

66. *Sayornis saya*. SAY'S PHOEBE. — This bird is the frequent associate of the Prairie Falcon, preferring to haunt just such cliffs as the nobler bird selects for nesting sites. Here it takes up its station about the middle of March, and it is rarely to be found at any considerable distance from home.

67. *Contopus borealis*. OLIVE-SIDED FLYCATCHER. — Not a common resident even in the higher ranges where it is found, but conspicuous on account of its clear, penetrating note, — *swee-chew, swee-chew*, delivered with great energy from a high branch in some fir tree.

68. *Contopus richardsonii*. WESTERN WOOD PEWEE. — This bird is perhaps the most conspicuous species of the fir-clad, precipitous shores of Lake Chelan, for with scarcely an interval along the shore line, its lugubrious notes can always be heard. The breeding range, so far as observed, is confined to the lake shore, where the birds choose some exposed situation, and set a dainty, hempen cup at the fork or foot of a bare limb, preferably of a sapling. Fresh eggs were found as late as July 28.

69. *Empidonax difficilis*. WESTERN FLYCATCHER. — The western Empidonaces are all at home on Lake Chelan. This species was noted only at Graham's Harbor, where it breeds, but it doubtless occurs in suitable localities throughout the county. Note a soft, sibilant, *pis'-wit*.

70. *Empidonax traillii*. TRAILL'S FLYCATCHER. — Abundant in the lower mountain-valleys and coulées. It is the commonest of the Empidonaces wherever found, and was recorded up to 1700 feet. One of its common notes is *pisob*.

71. *Empidonax hammondi*. HAMMOND'S FLYCATCHER. — Rare. Found chiefly about isolated springs where it is likely to be the only member of the genus present. Its note is a brisk *sewick, sewick*, and at rarer intervals, *switch-oo*, or *sweeéhoo*, — the latter harsh and unresonant, and so easily distinguished from the penetrating note of the Olive-sided Flycatcher.

72. *Empidonax wrightii*. WRIGHT'S FLYCATCHER. — Several specimens secured on Lake Chelan. It was found breeding at Graham Harbor and near Stehekin. Note a soft, liquid *swit*. This record extends the northern range of the species.

73. *Otocoris alpestris leucolæma*. PALLID HORNED LARK. — One individual wintered near Chelan. Easily distinguishable from

74. *Otocoris alpestris merrilli*. DUSKY HORNED LARK. — Found sparingly on the lower bunch grass hills. About 20 individuals were

seen on the Okanogan Flats during the spring migration, but they probably went further north.

75. *Pica pica hudsonica*. AMERICAN MAGPIE. — Abundant. Confined in spring to the coulées and springs, where they breed indifferently in willows and thorn-apples, or the highest pines. In the fall I have found these garrulous free-booters in the mountains at an altitude of 7000 feet. No other birds can thrive where the Magpies flourish, for their annual destruction of eggs and young is simply incalculable.

76. *Cyanocitta stelleri annectens*. BLACK-HEADED JAY. — Not common but of general distribution throughout the county.

77. *Corvus americanus*. AMERICAN CROW. — This bird does not seem to have been subjected to the persecutions which have made life a burden to its eastern brethren, and the result is that it is making a marked increase in numbers. Its cause for continued confidence is further witnessed by the fact that it still seeks low willow saplings for nesting sites.

78. *Nucifraga columbiana*. CLARKE'S NUTCRACKER. — A conspicuous bird of the pine forests, except during the early breeding season, when it is retiring, and cunningly silent.

79. *Molothrus ater*. COWBIRD. — Rare. Only two specimens were seen.

80. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD. — Found sparingly in the few suitable localities.

81. *Sturnella magna neglecta*. WESTERN MEADOWLARK. — Everywhere abundant on the lower levels, and found breeding up to 3000 feet.

82. *Icterus bullocki*. BULLOCK'S ORIOLE. — The counterpart of the eastern Baltimore Oriole in habits and general economy. Found commonly where balm trees abound, and by river sides.

83. *Scolecophagus cyanocephalus*. BREWER'S BLACKBIRD. — Sparingly found about the lower end of Lake Chelan and in settled valleys.

84. *Carpodacus cassini*. CASSIN'S PURPLE FINCH. — Seen only along Lake Chelan. A flock of them regularly visited the yard of the little hotel at Stehekin for crumbs.

85. *Loxia curvirostra minor*. AMERICAN CROSSBILL. — A small troop was seen at Stehekin in the summer of 1895.

86. *Leucosticte tephrocotis littoralis*. HEPBURN'S LEUCOSTICTE. — A pair of this rare species were found feeding full-grown young on the moraines just below the glacier of Wright's Peak, at an altitude of 8000 feet. North and west of this station there is an immense area of glacier flanked peaks, where the birds are sure to find a congenial summer home.

87. *Acanthis linaria*. REDPOLL. — Present in thousands during the early winter migrations. Many remain through the season.

88. *Spinus tristis*. AMERICAN GOLDFINCH. — Several large flocks were seen in December, but they are rare in the summer.

89. *Spinus pinus*. PINE SISKIN. — The ubiquitous bird of the higher ranges. In the summer they were plentiful at Stehekin, with an elevation of only 970 feet, and not less common near the mountain summits.

90. *Plectrophenax nivalis*. SNOWFLAKE. — Of irregular occurrence in winter. They are of course confined to the benches and little prairies. A few lingered till March 17.

91. *Poocætes gramineus confinis*. WESTERN VESPER SPARROW. — Not a common species. It is found sparingly in the artemesia of hill-sides.

92. *Ammodramus bairdii*. BAIRD'S SPARROW. — Observed in small numbers at Chelan, during both the spring and fall migrations.

93. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW. — A characteristic bird of the sage-covered flats, and the Columbia Valley sands.

94. *Zonotrichia leucophrys intermedia*. INTERMEDIATE SPARROW. — Of this bird my note book of May 14, 1896, says, "The Intermediate Sparrow is by all odds the commonest bird in Okanogan County, at the present writing. The number I have seen today in a thirty mile ride, probably exceeds that of all other birds combined. They are of almost universal distribution, but fairly swarm in wayside coppices." Notwithstanding this abundance, I have no record of any which stayed to breed.

95. *Zonotrichia coronata*. GOLDEN-CROWNED SPARROW. — A few individuals were noted during migrations.

96. *Spizella socialis arizonæ*. WESTERN CHIPPING SPARROW. — The monotonous trill of this lowly sage-bird is a tireless feature of any considerable stretch of open country. Most of the species are born in the sage, live, sing, mate, and die in the sage.

97. *Spizella breweri*. BREWER'S SPARROW. — An obscure Spizellan was caught attempting improvements on the familiar Chipping Sparrow ditty, and was instantly shot on suspicion. It was the only individual noted.

98. *Junco hyemalis oregonus*. OREGON JUNCO. — Like Mr. Rhoads, I prefer to set this Junco down as *oregonus*. It is common at low levels in the winter, but retreats up the mountains as warm weather approaches.

99. *Melospiza fasciata guttata*. RUSTY SONG SPARROW. — Not common. Restricted entirely to swamps, and brush patches along streams.

100. *Pipilo maculatus arcticus*. ARCTIC TOWHEE. — A specimen obtained Feb. 24, 1896, undoubtedly belongs to this subspecies. Through an oversight I failed to determine the standing of the resident bird, which may prove to be either *arcticus* or *megalonyx*.

101. *Habia melanocephala*. BLACK-HEADED GROSBEAK. — Only one individual was seen, in the brush of a spring draw.

102. *Passerina amoena*. LAZULI BUNTING. — These dainty bits of azure are gratifyingly common throughout the county. Any secluded brush patch or overgrown 'slashing' is sure to harbor a pair of them.

103. *Piranga ludoviciana*. LOUISIANA TANAGER. — The 'Louisiana' Tanager is one of the commonest birds in the timber. In spite of its brilliant colors, so well does it harmonize with the evergreen foliage, that its presence would generally go unsuspected, were it not for its tell-tale *pittic*, or *pittic*.

104. *Petrochelidon lunifrons*. CLIFF SWALLOW.—Only two colonies were found; one, of unmistakable immigrants, was taking possession of a barn near the mouth of the Methow River; the other, consisting of some 400 individuals, might have been occupying the cliffs in the Columbia gorge for several seasons.

105. *Chelidon erythrogastra*. BARN SWALLOW.—Rare. Found only in a cave at the head of Lake Chelan, and in a barn at Malott.

106. *Tachycineta bicolor*. TREE SWALLOW.—Rare. Seen only during migrations.

107. *Tachycineta thalassina*. VIOLET-GREEN SWALLOW.—Abundant in the mountains.

108. *Clivicola riparia*. BANK SWALLOW.—One colony in Chelan comprises 400 individuals.

109. *Ampelis garrulus*. BOHEMIAN WAXWING.—Several flocks of these beautiful birds were seen during the winter of 1895-96.

110. *Ampelis cedrorum*. CEDAR WAX-WING.—Okanogan County is a famous place for cherries and therefore for 'cherry birds.'

111. *Lanius borealis*. NORTHERN SHRIKE.—Several seen during the spring movement.

112. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE.—Not infrequent. Breeds.

113. *Vireo gilvus*. WARBLING VIREO.—The resilient genius of birch groves; common.

114. *Vireo solitarius cassinii*. CASSIN'S VIREO.—Perhaps less common than *gilvus*, but having the same general range.

115. *Helminthophila celata lutescens*. LUTESCENT WARBLER.—Not rare. A troop of them were heard singing gaily, while the snow of a belated storm was melting on one of the upland benches.

116. *Dendroica aestiva*. YELLOW WARBLER.—Common, but not abundant except at the foot of Lake Chelan.

117. *Dendroica auduboni*. AUDUBON'S WARBLER.—This trim little Warbler is to be found, not too plentifully, anywhere in the mountains. There seems to be no vertical limit to its range. I encountered these birds on Wright's Peak at an elevation of 8000 feet.

118. *Dendroica occidentalis*. HERMIT WARBLER.—A single specimen was secured in the dense fir forest on Pershall Creek at an elevation of 5000 feet.

119. *Geothlypis macgillivrayi*. MACGILLIVRAY'S WARBLER.—A not uncommon resident in underbrush and tangles. One song heard reminded me strongly of that of a Dickcissel, though, of course, lighter and much less penetrating, *sheep, sheep, sheep, shear, shear, sheep*; or *sheep, sheep, sheep, sheep, shear, sheep*.

120. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT.—Found sparingly in certain swamps and river bayous.

121. *Icteria virens longicauda*. LONG-TAILED CHAT.—This brilliant minstrel was first found piping to the solitary cliffs, which line the

Okanogan River on the north. A few scattering individuals were later noted on the Methow River.

122. *Sylvania pusilla pileolata*. PILEOLATED WARBLER.—A few individuals seen. The bird is likely to escape notice on account of its skulking habits.

123. *Setophaga ruticilla*. AMERICAN REDSTART.—Noted at two points: Silver and Methow City. At the latter place a pair were feeding their young in an alder grove below town.

124. *Anthus pensilvanicus*. AMERICAN PIPIT.—Comes straggling through the county in myriad swarms, during October and November. The spring movement is more rapid and compact.

125. *Cinclus mexicanus*. AMERICAN DIPPER.—Found throughout the length of every mountain stream. In winter many establish themselves along the Chelan River, which is always open, and seem to have among themselves quite well defined beats or stations, which they respect through the season.

126. *Galeoscoptes carolinensis*. CATBIRD.—A rare bird,—found only at the head and foot of Lake Chelan. Only two birds were seen, but a friend, Mr. Chas. Robinson, reports two nests from the foot of the lake.

127. *Salpinctes obsoletus*. ROCK WREN.—Common about all cliff and rock slides of the lightly timbered sections.

128. *Troglodytes aëdon aztecus*. WESTERN HOUSE WREN.—Observed only once, in the central part of the county, where it had built a nest over the door of a rancher's 'shack.'

129. *Troglodytes hiemalis pacificus*. WESTERN WINTER WREN.—Resident in the higher mountains.

130. *Sitta carolinensis aculeata*. SLENDER-BILLED NUTHATCH.—Not common throughout the county, but almost invariably associated with *Sitta pygmæa*.

131. *Sitta canadensis*. RED-BREASTED NUTHATCH.—Fairly common during migrations. Also breeds in the higher mountains.

132. *Sitta pygmæa*. PYGMY NUTHATCH.—Abundant in the regions of scattering pines. Except during the breeding season, they are always found collected in groups of from ten to one hundred. In these alliances, offensive and defensive, they usually include a pair or so of Slender-bills, who vary the monotony of their gentle sibilations by an occasional sharp *quank*.

133. *Parus atricapillus occidentalis*. OREGON CHICKADEE.—Common.

134. *Parus gambeli*. MOUNTAIN CHICKADEE.—Common. Its local range does not seem to be separable from that of *P. a. occidentalis*.

135. *Regulus satrapa olivaceus*. WESTERN GOLDEN-CROWNED KINGLET.—Fairly common. Found in summer in the highest mountains.

136. *Regulus calendula*. RUBY-CROWNED KINGLET.—Fairly common. To hear the dainty rollick of this happy elf is to forget the blues.

137. *Myadestes townsendii*. TOWNSEND'S SOLITAIRE.—Noted several times in midsummer in very diverse situations. Whenever seen it has maintained an imperturbable silence.

138. *Turdus ustulatus*. RUSSET-BACKED THRUSH.—Of uniform distribution in all wooded hollows.

139. *Turdus aonalaschkæ*. DWARF HERMIT THRUSH.—A single pair was found in a dense fir forest on a north slope, at an elevation of 4250 feet.

140. *Merula migratoria propinqua*. WESTERN ROBIN.—Common, but nowhere abundant.

141. *Hesperocichla nævia*. VARIED THRUSH.—A single straggler was seen skulking in the low thorn bushes, which line the foot of the lake, in early spring. It was, however, seen once again in midsummer in the higher ranges, where it undoubtedly breeds.

142. *Sialia mexicana occidentalis*. WESTERN BLUEBIRD.—Of irregular occurrence. Ten birds, in a compact bunch, were sighted on the 9th of March, and along through the middle of March numerous individuals were seen mingling freely with *Sialia arctica*. A group of ten were seen again on May 1, but no more were noted during the season.

143. *Sialia arctica*. MOUNTAIN BLUEBIRD.—These exquisites, in their quadruple-extract-of-azure garb, are justly ranked the topmost twig of the American ornithological tree. They pass at their leisure through Chelan and up the Columbia and Okanogan Rivers, in great flocks in the spring, while a scattering few remain to breed.

The following is a brief list of birds imperfectly identified or admitted on inconclusive evidence.

HYPOTHETICAL LIST.

1. *Larus occidentalis*. WESTERN GULL.—One of the Gulls seen on Lake Chelan probably belongs to this species. I believe it might have been found breeding, sparingly, four or five years ago.

2. *Larus philadelphia*. BONAPARTE'S GULL.—Either this bird or *L. franklinii* appeared several times on Lake Chelan during Dec., 1895.

3. *Olor buccinator*. TRUMPETER SWAN.—A pair seen at Wapato's in the spring of 1896 could not with certainty be distinguished from *O. columbianus*. They are said to be not uncommon.

4. *Grus mexicana*. SANDHILL CRANE.—Cranes are abundant during migrations, and are said to breed in the northern part of the county, in the 'lime belt'. I had no opportunity to determine the species. Several years ago an army of crickets invaded the country about Chelan, and immediately large flocks of Cranes appeared, who at once devoted themselves to ridding the land of the pests. The Cranes are said to have passed south following the march of the crickets.

5. *Totanus melanoleucus*. GREATER YELLOW-LEGS.—One bird believed to be of this species was seen flying high over the Chelan River.

6. *Centrocercus urophasianus*. SAGE GROUSE.—I have it on the authority of Mr. G. M. Adams, of Virginia City, that 'Sage Hens' were formerly found on the north bank of the Columbia River near his place.

But since they are such large birds, and find so little of their favorite sage-brush cover, it is doubtful whether any remain in the county at present.

7. *Coccyzus americanus occidentalis*. CALIFORNIA CUCKOO. — Unmistakable Cuckoo notes were twice heard, but the birds were not discovered.

8. *Corvus corax sinuatus*. AMERICAN RAVEN. — Some strange croaks heard and a brief glimpse obtained at Hallowe'en Basin (elevation 6500 feet) entitle this bird to a place on the list of suspects.

9. *Helminthophila ruficapilla gutturalis*. CALAVERAS WARBLER. — A troop of Warblers seen in the spring migration seems referable to this species.

10. *Dendroica nigrescens*. BLACK-THROATED GRAY WARBLER. — I believe I heard a song of this bird above Graham Harbor on Lake Chelan.

DESCRIPTION OF A NEW PINE GROSBK FROM CALIFORNIA.

BY WILLIAM W. PRICE.

Pinicola enucleator californica, new subspecies. CALIFORNIA PINE GROSBK.

General characters. — "Very similar to *P. e. kodiaka*, but differs in the very much narrower bill, and the less extensive red in the plumage."¹ It differs from *P. e. canadensis* in the much larger, more hooked and less turgid bill, and in the almost entire absence of dark centers to the feathers on the back and scapulars. The difference in size and shape of the bill is as distinct as the difference between *Carpodacus purpureus* and *C. cassini*.

Type, ♂ ad. (No. 3429, Museum Leland Stanford, Jr., University; Pyramid Peak, near Echo Post Office, El Dorado Co., California, altitude about 7500 feet, July 18, 1896; collected by W. W. Price and C. S. Dole). General color light vermillion varying on head to intense vermillion, slightly tinged with yellowish and madder-pink, and changing to ash gray on scapulars, flanks, belly and under tail-coverts. The plumage is everywhere of this color beneath the surface, giving a general appearance of

¹ Mr. Robert Ridgway in letter, to whom a series of the California *Pinicola* was sent for determination.

Dimensions of Adults in Millimeters.

Number.	Sex.	Locality.	Wing.	Tail.	Tarsus.	Chord of Culmen.	Side length, lower Mandible.	Length of Gony.	Height upper Mand. at Nostril.	Length upper Mand. from Nostril.	Width upper Mandible at base.	Height of Bill.	Remarks.
*7966	♂	Silver Lake, Cal.	115	102	19	15	13	9.8	5.2	11.6	9	10	Type. Type.
1000	♂	Pyramid Peak, Cal.	115	102	20.8	15.1	13	9.7	5.1	11	9	10.2	
1001	♂	"	110	94	19.2	14	12.8	9.8	5.2	11	9.8	10	
3429	♂	"	119	107	20	14.9	13	10	5.2	11	9.1	10.8	
3430	♀	"	108	96	20	15	12.5	10	5.1	11.1	8.9	10	
1004	♀	"	111	103	20.5	15.2	13.9	9.9	5.2	12	9	10.2	
1005	♀	"	112	95	19.9	15.2	13.2	10	5.4	12	9.5	10	
1006	♀	"	115	97	20.5	14.5	13	10	5.1	11	9.1	10.1	
Average of 8 adults.			113.1	99.5	19.9	14.8	13.1	9.9	5.2	11.2	9.1	10.1	
*7588	♂	Hamilton, Canada.	115	100	20.1	13	11	7.8	6.2	10	8.8	11	
3000	♀	"	106	94	20	14	12.8	9.6	6.3	11.1	9	11	
*7459	♀	Middlesex Co., Mass.	103	98.6	20.5	14	11.2	8.6	6.1	11	9	11.1	
Average of 3 adults.			108	97.5	20.2	13.7	11.6	8.3	6.2	10.7	8.9	11	

* I am indebted to the Californian Academy of Sciences for the loan of these specimens.

seasonal changes or immaturity; the scapulars and feathers of the central back with only the faintest trace of dusky centers; wings and tail dusky, the middle and greater coverts tipped with whitish, tertials edged exteriorly with the same, secondaries, primaries and the tail-feathers faintly edged with grayish.

Type, ♀ ad. (No. 3430, Museum Leland Stanford, Jr., University; Pyramid Peak, near Echo Post Office, El Dorado Co., California, altitude about 7500 feet, July 28, 1896; collected by W. W. Price and C. S. Dole.) General color clear ash gray, the wings and tail markings similar to the male, top and sides of head, back of neck and a few splashes on breast, bright tawny yellow, the posterior upper tail-coverts with a faint wash of the same color.

Young ♂ and ♀ nearly full grown, indistinguishable, similar to the adult ♀, but plumage more tawny gray, the quills and tail-feathers slaty black, the tips of the greater coverts light fawn, the tertials broadly edged with a lighter shade of fawn; the secondaries broadly edged with grayish white, the primaries and tail-feathers narrowly edged with slate gray.

Nestlings scarcely able to leave the nest, very similar to the older young, but with the throat more distinctly tawny, plumage very immature, the first cottony plumules still persisting on the ends of the coverts.

This apparently very distinct *Pinicola* is an inhabitant of the higher Sierra Nevada Mountains of Central California. It is strictly an alpine species; I have never seen it below 7000 feet and I have taken it near timber-line. It is peculiar to the belt of tamarack pine (*Pinus murrayana*), and the beautiful red alpine fir (*Abies magnifica*), and most of the specimens taken were in groves of this latter tree. According to my observations this bird is uncommon, for, during several vacations spent in the higher Sierra, I have met with it only on rare occasions. The first time I saw this Grosbeak was on the evening of August 5, 1892, near Pyramid Peak. I was returning to my camp, along the margin of a shallow alpine lake, bordered by a dense growth of *Abies magnifica*, when a grayish bird flew fearlessly to the edge of the water within a few feet of me. The color was so very similar to that of Townsend's Solitaire, *Myadestes townsendii*, I might in the twilight have passed it for that species, had I not caught a glimpse of its large and heavy bill. I secured it, and to my surprise found it an adult female *Pinicola*, the first I had ever seen from California. I saw no more that summer though I spent over a month in the higher altitudes.

The next time I observed the species was in 1895. I obtained, June 27, a fine male near Silver Lake in Amador Co. (about 20 miles due south of Pyramid Peak), and saw on the same date a female which was evidently its mate. No more were seen in that locality, but in July of the same summer I saw two or three individuals in fir woods on Pyramid Peak, but secured none.

Last summer, 1896, I again visited Pyramid Peak, and was fortunate in getting a fine series of *Pinicola*, 20 specimens in all, and of which all but 4 were available for examination in making the present report. I was assisted in my field work by Mr. C. S. Dole, and Mr. P. O. Simons, and to their efforts is greatly due the large and interesting series.

The greater number of adults were taken on the edges of alpine pastures where salt is placed on fallen logs for stock. The Pine Grosbeak visits these 'salt licks' in company with Cassin's Purple Finch and the Western Evening Grosbeak, and was at all times exceedingly fearless and unsuspicious. The males have a very pleasing song, and hearing it upon one occasion, I thought it resembled the song of *Carpodacus cassinii*. Their call-note is not loud and grating like the note of the Evening Grosbeak.

They breed late, as attested by two nestlings brought to me July 29, by a camper, who found them on the lower branches of a fir in a wild glen at the western base of Pyramid Peak, at about 9000 feet elevation. He did not see any nest, nor did the parent birds put in an appearance. The same day Mr. Dole and Mr. Simons each obtained a young specimen, perhaps five days older. These could fly quite easily. On August 3, while collecting in a forest of fir east of Pyramid Peak, Mr. Dole obtained two additional young, which were nearly full grown. The female parent which was feeding them was also secured.

The crop and stomach of an adult contained the soft leaf ends of *Pinus murrayana* and *Abies magnifica*, besides seeds and portions of various insects.

I have taken the following notes from Mr. Belding's 'Land Birds of the Pacific District': "L. B.—Summit, Central Pacific Railroad (Placer Co.), August 11, 1882, tolerably common; from June 23 to July 10, 1885, an adult male and female feeding in alders; during this time these only; but later in August and

September, not rare, in fact rather common. Blood's (Calaveras Co.), July 16, 1880, shot an adult female which probably had a nest; specimen sent to the Smithsonian Institution."¹

Dr. A. K. Fisher in his report on the birds of the Death Valley expedition,² says of this species: "Mr. Nelson saw a fine adult male Pine Grosbeak in brilliant plumage on the head of the San Joaquin River, July 30 (1891). This individual was the only one seen during the year."

I have described this form as a subspecies somewhat in opposition to the canons of the American Ornithologists' Union, for I have seen no examples of intergradation. However, these may be expected from the higher mountains northward, the Sierra form being the most southern representative of the genus.

Unlike the Pine Grosbeaks living in the far north, these birds probably find it unnecessary to migrate any great distance in winter. If the weather is too severe on the alpine summits, they can in a moment drop down into the deep cañons which furrow the western flank of the Sierra, and find a temperate climate and abundance of food.

CRITICAL REMARKS ON *CISTOTHORUS PALUSTRIS* (WILS.) AND ITS WESTERN ALLIES.

BY HARRY C. OBERHOLSER.

THE typical form of *Cistothorus palustris* inhabits the greater portion of the eastern United States and southern British America, west to at least Kansas and Manitoba. Upon the Pacific Coast it is replaced by *Cistothorus p. paludicola* of Baird; while the birds

¹ Land Birds of the Pacific District, by Lyman Belding. Occasional Papers of the Calif. Acad. of Sciences, II, 1890, p. 131.

² North American Fauna, No. 7, Pt. II, U. S. Dept. of Agriculture, Washington, 1893, p. 79.

from the intermediate region belong to an apparently undescribed geographical race.

Considered with reference to its western representatives *palustris* presents the extreme of darkness and richness in the coloration of the upper parts and flanks. The Pacific Coast bird is, however, nearly as dark above, though the colors are duller; but the form from the Great Basin is paler than either. In *palustris* the lower parts are usually clearer white, the bill averages longer, the wings and tail shorter than in either of the western races. The eastern bird further differs in having the middle tail-feathers usually without regular or distinct bars, the upper and lower tail-coverts not barred; but no one of these characters is quite constant. In most examples of *palustris* (90 per cent of the specimens examined) the markings of the central rectrices are reduced to mere spots or scarcely indicated bars, being rarely so regular or so clearly defined as in extreme examples of the western races. In 94 per cent of the available specimens of *palustris* the superior tail-coverts are found to be without appreciable transverse markings; while the remaining 6 per cent exhibit fairly well defined bars. The absence of distinct bars on the lower tail-coverts serves to distinguish 71 per cent of the specimens examined, and is apparently a fair average character, though some of the remaining 29 per cent have these markings fully as dark and as clearly indicated as in the most typical examples of the western forms.

Professor Baird, in distinguishing¹ *palustris* from his *paludicola* says of the former, "bill lengthened, equal to tarsus"; but reference to the measurements given in the present paper will at once show the fallibility of this character.

All specimens of *palustris* are, as a rule, noticeably darker and more richly colored than those taken in spring or summer, this affecting chiefly the brown portions of the plumage; but in this respect there is at all seasons considerable individual variation.

Among the specimens at hand, most of them from Illinois and from the vicinity of Washington, D. C., much difference exists in the amount of paler color on the pileum. This lighter brown

¹ Review of American Birds, I, 1864, 148.

sometimes covers all but a narrow lateral stripe of normally black, occasionally clove brown, but is sometimes almost absent, being restricted to the central portion of the forehead, the remainder of the pileum being in such case solid black. That this variation is not due to sex may at once be seen by reference to the specimens; and that it is not due to season is equally apparent, since among birds taken in the fall as well as in the spring both these extremes of coloration exist. That a change from brown to black is not produced by the wearing away of the tips of the feathers, as suggested by Dr. Sharpe¹ in connection with *Cistothorus p. paludicola*, is conclusively proved by the fact that many of the birds with most black upon the head are those in freshly molted spring and fall plumages, while a July specimen in worn plumage has the central part of the pileum brown in marked contrast to the black of the lateral portions. These facts seem to indicate that the differences noted are, as mentioned by Dr. Coues,² not correlated with any age, sex, or season, but are the result of purely individual variation.

It has for various reasons been deemed advisable to here include a reasonably complete synonymy of the two western forms; and the present writer is responsible for the correct citation of all references.

The type of Professor Baird's *Cistothorus palustris* var. *paludicola* came from Shoalwater Bay, Washington, and is still in the National Museum. Examination shows it to represent the dark Pacific Coast race, for which the name therefore becomes available. No other specific or subspecific designations appear to have been bestowed upon either of the western forms, and the bird from the interior being thus without a name, may be called

***Cistothorus palustris plesius*, subsp. nov.**

Troglodytes palustris GAMBEL, Proc. Acad. Nat. Sci. Phila. III, 1846, 113; NEWBERRY, U. S. P. R. R. Rep. VI, 1857, Zool. 80 (part); SWAINS. & RICH. Fauna Bor.-Amer. II, 1831, 319 (part); HENRY, Proc. Acad. Nat. Sci. Phila. VII, 1855, 309.

¹ Cat. Birds in Brit. Mus., VI, 1881, 243.

² Birds of Colorado Valley, 1878, 179.

Troglodytes arundinaceus GAMBEL, Journ. Acad. Nat. Sci. Phila. I, 1847.
33.

Cistothorus (Telmatodytes) palustris BAIRD, U. S. P. R. R. Rep. IX, 1858, 364 (part).

Telmatodytes palustris HENRY, Proc. Acad. Nat. Sci. Phila. XI, 1859, 107; COUES, Birds Northwest, 1874, 34 (part); *id.* Birds Colo. Valley, 1878, 178 (part); RIDGWAY, Bull. Essex Inst. V, 1873, 180 (Colorado); DREW, B. N. O. C. VI, 1881, 88; COUES, Key to N. A. Birds, 1872, 87 (part).

Cistothorus palustris SCLATER, Cat. Amer. Birds, 1861, 22 (part); COUES, Ibis, 1865, 164; *id.* Proc. Acad. Nat. Sci. Phila. XVIII, 1866, 78 (Arizona); COOPER, Birds Calif. 1870, 75 (part); ALLEN, Bull. Mus. Comp. Zool. III, 1872, 175 (Utah); AIKES, Proc. Bost. Soc. N. H. XV, 1872, 196; MERRIAM, Ann. Rep. U. S. Geol. Sur. Terr. for 1872, 1873, 673 (part); GODMAN & SALVIN, Biol. Cent. Am., Aves, I, 1880, 104 (part); A. O. U. Check-List N. A. Birds, 1886, 330 (part); SCOTT, Auk, V, 1888, 165; MERRIAM, N. A. Fauna No. 3, 1890, 100; *id. ibid.* No. 5, 1891, 107; ATTWATER, Auk IX, 1892, 343.

Cistothorus palustris var. *paludicola* BAIRD, Rev. Amer. Birds, I, 1864, 148 (part); BAIRD, BREWER & RIDGWAY, Hist. N. Am. Land Birds, I, 1874, 161 (part); HENSHAW, Ann. Lyc. Nat. Hist. N. Y. XI, 1874, 3; HENSHAW, Geog. & Geol. Surv. W. 100 Mer. V, 1875, 185 (part).

Telmatodytes palustris var. *paludicola* LAWRENCE, Mem. Bost. Soc. Nat. Hist. II, 1874, 268; YARROW & HENSHAW, Rep. Orn. Specs., 1874, 9; HENSHAW, Rep. Orn. Spec. 1874, 41, 74, 101.

Telmatodytes palustris β *paludicola* RIDGWAY, Geol. Ex. 40th. Par. IV, 1877, 425 (part).

Cistothorus paludicola SHARPE, Cat. Birds Brit. Mus. VI, 1881, 242 (part).

Telmatodytes palustris paludicola BREWSTER, B. N. O. C. VII, 1882, 227; ALLEN & BREWSTER, B. N. O. C. VIII, 1883, 155.

Cistothorus palustris paludicola RIDGWAY, Man. N. A. Birds, 1887, 556 (part); A. O. U. Check-List, 1st Supplement, 1889, 16 (part); A. O. U. Check-List N. A. Birds, 1895, 302 (part); MERRILL, Auk, V, 1888, 362; STEPHENS, Auk, VII, 1890, 297; FANNIN, Check List Brit. Col. Birds, 1891, 43; FISHER, N. A. Fauna No. 7, 1893, 136; RIDGWAY, Manual N. A. Birds, 1896, 556 (part).

CHARS SUBSP. — *Cistothorus C. palustris affinis*, a quo differt rectricibus mediis, subcaudalibus et supracaudalibus distincte ac regulariter transfasciatis; corpore superiore, colli capitisque lateribus cum hypochondriis pallidioribus atque paulo canescentioribus; pilei partibus obscurioribus magis restrictis brunneis nec nigris; rostro brevior, alis caudaque longioribus.

Al., 48-57 (52.5) mm.; caud., 41.5-51 (46.1) mm.; culm. exp., 11-13.5 (12.4) mm.; tars., 17-20 (18.7) mm.

Habitat. — Western United States except the Pacific Coast; north to British Columbia and Alberta, east to the Rocky Mountains and Texas, south into Mexico.

Description. — *Type*, male, adult, No. 114938 U. S. Nat. Mus.; Fort Wingate, N. M., Sept. 24, 1888; Dr. R. W. Shufeldt. Cervix and center of crown bistre brown, rather darker on the former; a streak on each side of crown extending backward to cervix, clove brown; lower cervix, and a triangular patch on interscapulum, broadest anteriorly where spreading out toward sides of neck, black, the feathers of the latter with broad white shaft streaks; remainder of upper parts brown, shading from broccoli brown on the anterior portions of scapulars to reddish raw umber on rump, and to a darker shade of same on upper tail-coverts, which last are distinctly barred with blackish. Middle pair of tail-feathers like upper tail-coverts, and quite regularly barred with black; other rectrices of a similar color, but shading to broccoli brown toward their tips and on their inner vanes, marked with heavy bars of black, which except on outer pair are strongly inclined to be confluent. Wing quills dark olive brown; the superior coverts, together with the indentations and edgings on quills, grayish raw umber, these markings much paler, almost buffy white on the primaries; outer vanes of tertials and roundish spots on external webs of greater coverts, black. Superciliary stripe, and middle portion of under parts, soiled white; lores grayish white; sides of head and neck, with auriculars, grayish white, mixed with buffy; a band across the chest distinctly buffy grayish; sides and flanks pale wood brown; anal region buff; lower tail-coverts dull white, closely barred with deep buff and to a less extent with dark brown.

Young male, No. 82772 U. S. Nat. Mus.; Parley's Park, Utah, July 28, 1869; R. Ridgway. Pileum and post-ocular stripe clove brown; cervix and upper back grayish white, much mottled by the dark brown margins of the feathers; a small spot in center of interscapulum black; remainder of upper parts reddish raw umber brown; tail the same color, though rather paler and grayer towards its tip, regularly barred with brownish black, which color also almost entirely occupies the inner webs of all but the central rectrices. Wings bistre brown, margins of quills and coverts like the back. Sides of neck and head dull grayish white, mixed with brownish; anterior lower parts brownish gray; posterior lower parts and superciliary stripe grayish white, the former with a buffy tinge; sides, flanks and crissum dull buff. "Upper mandible, sepia-black; commissure and lower mandible, pale lilaceous; iris, brown; tarsi, dark sepia-plumbeous; toes, paler, whitish beneath."¹

This subspecies differs from true *palustris* in the usual presence of regular, distinct and much heavier bars on the two middle tail

¹ Ridgway, Geol. Ex. 40th Parallel, IV, 1877, 426.

feathers, and in its generally barred upper and lower tail-coverts. Though none of these characters are entirely constant, they nevertheless furnish good average distinctions. The first mentioned prevails in 67 per cent ; that of barred upper tail-coverts in 71 per cent ; and the lower tail-coverts are transversely marked in 90 per cent of the specimens examined, although in many cases the barring, while perfectly evident, is not blackish, but buff. The lower parts in *C. p. plesius* are commonly rather grayer and less purely white than in *palustris*. The bill averages considerably shorter, the wings and tail somewhat longer. The flanks and upper parts, including the sides of neck and head, are much paler and usually somewhat more grayish, this affecting chiefly the brown portions of the plumage. In the shade of these parts fall specimens of *plesius* are very close to some spring and summer examples of *palustris*, but can usually by the other characters be easily distinguished. Comparison of specimens taken at corresponding seasons, however, makes at once evident the differences between the two forms. The lighter brown of the central portion of the pileum averages much paler and more extensive in *plesius* than in *palustris*. There are among the specimens examined none of the latter which have the lighter brown so pale or so extensive as seen in some of the former ; and none of this western race have the dark lateral stripes so intense in color as have many examples of the eastern bird.

The most noticeable character which separates *C. p. plesius* from *paludicola* is the much paler color of both the upper and lower parts, this difference being usually most apparent on the flanks, upper surface of the wings, scapulars, lower back and rump. The wings, tail and bill average somewhat longer ; and the total length of culmen is decidedly longer than middle toe without claw, which is not the case with *paludicola*. So far as is indicated by the specimens examined, the bars on the middle rectrices of *plesius* average broader and somewhat more regular than in *paludicola*. The area of light brown on the crown averages very much more extensive than in *paludicola*, often reducing to mere lateral stripes the dark brown or blackish color. This difference, as well as the paler general color of the birds from the western interior, was

mentioned by Professor Baird,¹ but was apparently not considered as a subspecific distinction.

The summer specimens of *Cistothorus p. plesius* are all in much worn plumage, but indicate what is borne out by the two spring birds at hand, — that fall birds are, as would be expected, darker and more richly colored, although among the fall specimens there exists considerable individual variation, particularly in the brown colors of the upper parts.

A fall specimen from South Edmonton, Alberta, and one from Fort Brown, Texas, are much brighter tawny above than any of the others examined, but are both very much paler than *palustris*. One example from Fort Klamath, Oregon (U. S. N. M. No. 94757, Aug. 12, 1883), is rather intermediate between *plesius* and *paludicola*, but is perhaps best referred to the former. A November specimen from the same locality is, however, quite typical of *plesius*, having very probably migrated thither from the interior. A bird from Fort Crook, Calif., taken on March 31, is quite typical of the present race, and doubtless represents the breeding form at this place, since at Eagle Lake, Calif., which lies in a similar and neighboring region, *C. p. plesius* has been taken during the summer season. A specimen from Caribou Road, British Columbia, is not perfectly typical of the present subspecies, but somewhat approaches *paludicola* in the generally duller and rather darker shades of the upper parts. In Arizona and adjacent parts of Mexico there not infrequently occur fall examples which in depth of color are clearly intermediates verging towards *paludicola*; but such are usually somewhat nearer the Great Basin form.

Although no Colorado specimens have been examined, *plesius* undoubtedly extends eastward as far as the Rocky Mountains. Whether or not this form breeds in Texas remains yet to be ascertained, as the only specimens at hand are evidently migrants. Very typical examples of *plesius* have been taken at Miraflores, Lower California, and at Mazatlan, in the State of Sinaloa, Mexico, but these excepted, there are available none from Mexico south of the United States Boundary Line. The Long-billed Marsh Wren has been recorded by Mr. Sclater from Tomatlan,

¹ Baird. Brewer and Ridgway, Hist. N. Am. Land Birds, I, 1874, 162.

Vera Cruz,¹ and from near the City of Mexico;² but without recourse to the specimens it is impossible to certainly determine to which subspecies they are referrible. The inclusion of Guatemala in the range of the Long-billed Marsh Wren is evidently a mistake, as pointed out by Messrs. Godman and Salvin.³

The specimens of *Cistothorus palustris plesius* examined in the present connection represent the following localities, breeding birds being indicated by an asterisk :

Alberta. — South Edmonton.

British Columbia. — Caribou Road.

Washington. — Marshall; Fort Walla Walla.

Oregon. — Fort Klamath; Burns.*

California. — Death Valley; Marysville; Fort Crook; Eagle Lake.*

Nevada. — Ash Meadows; Truckee Bottoms.

Utah. — Ogden; Toquerville; Parley's Park; * Provo; * Provo River.*

Arizona. — Seven miles south of Bisbee; Tucson; Fort Whipple; La Noria (Monument 112 M. B. L.).

New Mexico. — Fort Wingate; Lake Piedra.*

Texas. — Fort Brown; Fort Clark; San Antonio.

Lower California. — Miraflores.

Sonora. — Sonoyta; San Bernardino River (Monument 77, M. B. L.).

Chihuahua. — Lake Polomus.

Sinaloa. — Mazatlan.

Cistothorus palustris paludicola Baird.

Troglodytes palustris (?) NEWBERRY, U. S. P. R. R. Rep. VI, 1857, Zool. 80 (part).

Cistothorus (Telmatoodytes) palustris BAIRD, U. S. P. R. R. Rep. IX, 1858, 364 (part).

Cistothorus palustris XANTUS, Proc. Acad. Nat. Sci. Phila. XI, 1859, 191; COOPER, U. S. P. R. R. Rep. XII, pt. II, 1860, 190; (?) SCLATER, Cat. Amer. Birds, 1861, 22 (part); COOPER, Birds Calif. 1870, 75 (part); MERRIAM, Ann. Rep. U. S. Geol. Sur. Terr. for 1872, 1873, 673 (part); GODMAN & SALVIN, Biol. Cent. Amer. Aves, I, 1880, 104 (part); A. O. U. Check-List N. A. Birds, 1886, 330 (part).

Telmatoodytes palustris COUES, Birds Northwest, 1874, 34 (part); *id.* Birds, Colo. Valley, 1878, 178 (part); *id.* Key to N. A. Birds, 1872, 87 (part).

¹ Proc. Zool. Soc. Lond., 1856, 290.

² Proc. Zool. Soc. Lond., 1864, 172.

³ Biol. Cent. Amer., Aves, I, 1880, 105.

Cistothorus palustris var. *paludicola* BAIRD, Rev. Am. Birds, I, 1864, 148 (part); BAIRD, BREWER & RIDGWAY, Hist. N. Am. Land Birds, I, 1874, 161 (part); HENSHAW, Geog. & Geol. Sur. W. 100 Mer. V, 1875, 185 (part).

Telmatodytes palustris ♂ *paludicola* RIDGWAY, Geol. Ex. 40th Par. IV, 1877, 425 (part).

Cistothorus paludicola SHARPE, Cat. Birds, Brit. Mus. VI, 1881, 242 (part).

Telmatodytes palustris paludicola COUES, Key to N. A. Birds, 1887, 279.

Cistothorus palustris paludicola RIDGWAY, Man. N. A. Birds, 1887, 556 (part); A. O. U. Check List, 1st Supplement, 1889, 16 (part); A. O. U. Check-List N. A. Birds, 1895, 302 (part); LAWRENCE, Auk, IX, 1892, 357; RIDGWAY, Man. N. A. Birds, 1896, 556 (part).

CHARS. SUBSP. — *Cistothorus C. palustri plesio similis, sed corpore supra et hypochondriis saturatioribus, pilei partibus obscurioribus magis extensis, alis caudaque brevioribus, nec culmine digito medio, ungue excluso, valde longiore, haud difficile distinguendus.*

Al., 46.5-53 (50.1) mm.; caud., 40.5-48 (43.8) mm.; culm. exp., 11.5-12 (11.9) mm.; tars., 17-20 (18.2) mm.

Habitat. — Pacific Coast from Washington to California, south in winter to extreme northwestern Mexico.

Description. — *Type*, No. 7141 U. S. Nat. Mus.; Shoalwater Bay, Washington, Oct. 31, 1854; Dr. J. G. Cooper. Pileum and nucha brown, intermediate between mummy brown and bistre; upper parts generally of similar color, but paler and grayer on scapulars, more reddish on rump and upper tail-coverts, the latter heavily barred with black; lateral stripes on pileum, and large triangular patch on lower cervix and interscapulum, dark clove brown, this patch broadest anteriorly, where reaching to sides of neck, the feathers with conspicuous white shaft streaks. Tail like the rump, becoming hair brown on terminal portions of outer feathers, heavily barred with black, these markings more or less confluent on all but the central pair, the basal portions of inner webs of some of the feathers being almost solidly black. Wings dark olive brown; edgings of coverts and indentations on quills brown, nearly like the scapulars; entire outer webs of tertials and spots on external webs of greater coverts black. Sides of head and neck, with auriculars, light mummy brown mixed with grayish; superciliary stripe, and lower parts generally, dull white with a slight buffy wash, heavily shaded with dull buffy across breast; sides and flanks dull cinnamon; crissum strongly barred with mummy brown, and on longest feathers with black.

The much darker colors both above and below, with the greater extent of the dark portions of the pileum, readily distinguish this coast form from *C. p. plesius*. The bill of *paludicola* appears to be relatively as well as actually shorter, being not decidedly longer

than middle toe without claw; and the wings and tail also average somewhat less.

The most conspicuous characters which separate this subspecies from *palustris* are the presence of regular and distinct bars on the tail-coverts and middle rectrices; these differences, particularly the latter, being not, however, entirely constant. The bill of *paludicola* is much shorter than that of *palustris*; the wings and tail average somewhat longer. The Pacific Coast form is also usually much tinged with brownish below, instead of being nearly pure white as in *palustris*. The upper parts, though almost as dark, are more sooty in color, and while there exists considerable individual variation in the ratio of the light and dark areas on the pileum, yet in none of the specimens is the dark portion so nearly black as in normal examples of *palustris*.

One Long-billed Marsh Wren from Fort Tejon, Calif., and three obtained on the Colorado River, in Sonora, by the naturalists of the Mexican Boundary Commission, are quite typical of *paludicola*, but are evidently migrants.

Specimens of *Cistothorus palustris paludicola* from the following localities have been examined, those taken in the breeding season being designated by an asterisk :

Washington.—Shoalwater Bay.

California.—Marin County; Humboldt Bay; Fort Tejon; San Francisco; Stockton.*

Sonora.—Colorado River, opposite mouth of Rio Hardy.

The difficulties attending identification of the western forms of the Long-billed Marsh Wren have induced the present detailed treatment of the subject. These difficulties, as is so often the case with subspecies, consist in the more or less inconstancy of many of the characters assigned. Specimens frequently occur which do not present all the characters of a particular race; and since such specimens must be identified by the average of characters presented, the necessity for very complete diagnoses becomes at once apparent.

The writer wishes to express to Dr. C. Hart Merriam and to Dr. E. A. Mearns his appreciation of their kindness in regard to the loan of specimens; and for the same and other courtesies he

is under especial obligation to Mr. Robert Ridgway, at whose suggestion the preparation of this paper was undertaken.

Comparative measurements of the forms here treated are given below.

COMPARATIVE MEASUREMENTS.

Cistothorus palustris.

	Wing.	Tail.	Exposed Culmen.	Culmen from base.	Tarsus.	Middle Toe.	Middle Claw.
Average of 27 specimens.	48.6	40.2	13.2	14.9	18.8	12.8	5.3
Maximum.	52	46.5	14	16	20.5	14	6
Minimum.	44	34.5	12	14	17	11.5	5
Average of 17 males.	49.8	41.3	13.5	15.1	19.2	13	5.4
Average of 10 females.	46.8	38.3	12.9	14.5	18.3	12.4	5.2

Cistothorus palustris plesius.

Average of 26 specimens.	52.5 ¹	46.1 ¹	12.4	14	18.7	12.4	5
Maximum.	57	51	13.5	15.5	20	13	5.5
Minimum.	48	41.5	11	13	17	11.5	4.5
Average of 13 males.	53.9 ²	47.4 ²	12.7	14.4	19	12.7	5
Average of 6 females.	50.4	43.9	12.2	13.6	18.5	12.1	4.8

Cistothorus palustris paludicola.

Average of 9 specimens.	50.1	43.8	11.9 ³	13.3 ³	18.2	12.6	5.1
Maximum.	53	48	12	14	20	13.5	5.5
Minimum.	46.5	40.5	11.5	12.5	17	11	4.5

¹ Excludes four in worn plumage.

² Excludes three in worn plumage.

³ Excludes one with bill broken.

THE UNUSUAL OCCURRENCE OF BRÜNNICH'S
MURRE (*URIA LOMVIA*) FAR INLAND, WITH
NOTES ON OTHER RARE BIRDS.

BY A. W. BUTLER.

THE following notes upon Indiana birds will doubtless be of service, not only to persons interested in the bird-life of that, but also to those who are studying especially the birds of neighboring political divisions. While one may for certain reasons confine most of his efforts to regions circumscribed by man-made boundaries birds do not obey the laws of any commonwealth, nor are they confined within any limits man may set.

A list of the birds of a locality or of any number of localities can only give the knowledge acquired up to its date. Nothing can be prophesied as to the future. A species which has regularly appeared may change this habit. A form which has not before been observed may be noted. The most unexpected may be the thing which happens. Herein I have noted for the first time five species which are additions to the fauna of Indiana. They are *Uria lomvia*, *Macrorhamphus griseus*, *Tringa canutus*, *Buteo borealis harlani*, and *Fregata aquila*.

***Uria lomvia*. BRÜNNICH'S MURRE.**—While at Indianapolis the last week in December, 1896, Prof. W. S. Blatchley, State Geologist of Indiana, told me of a strange bird that had been taken near there. His information was it was some sort of a Guillemot. I learned it had been sent for mounting to Mr. J. E. Beasley, at Lebanon, Ind., and that the same taxidermist had received others. Upon my return home I found a letter from my friend Mr. Ruthven Deane informing me that Mr. F. M. Woodruff of the Chicago Academy of Science had received a Murre from Indiana. A few days later this information was supplemented by a letter from Mr. Woodruff informing me that the specimen was *Uria lomvia*.

In looking over my accumulated mail I found a report from Mr. A. W. Hamilton, Zanesville, Ind., of the capture of a specimen near there. Prof. E. S. Moseley wrote me of the capture of four specimens near Sandusky, O., and Mr. J. E. Beasley, in a note, said he had received four specimens. Thus the total number of records received in a few days was ten. I give herewith data concerning the specimens.

The first specimen mentioned above was brought to Mr. F. M. Noe, a dealer in natural history specimens, of Indianapolis, Dec. 17, 1896, by a

boy who told him that it had been taken alive the preceding Sunday, Dec. 13, near Schofield's old mill, on Fall Creek, about seven miles north of that city. The specimen is now in the collection in the State Geologist's office at the capitol. The specimen reported by Mr. Hamilton was taken by Mr. J. W. Roe of Zanesville, Ind., in the northern part of Wells County, Dec. 18, 1896. It was first observed slowly moving about in an open field and was shot at long range.

On Dec. 28, Mr. J. E. Beasley wrote me that he had in his possession four of these birds from four different Indiana localities. One was the specimen sent by Mr. Noe. Another was brought to him alive by Mr. David Johnson, from Hazelrigg, Boone County, Dec. 18. Mr. A. W. Beck, of Hazelrigg, informs me that it was captured alive about Dec. 15. Mr. Johnson was driving along the road near that town and saw the bird in a field near by. He caught it and kept it two or three days. It was a persistent diver when put into the water; would offer to fight when approached, and did not make much effort to get away. The third bird was sent to him by Mr. J. F. Warner of Fowler, Benton County. Mr. Warner has written me the bird was captured on the road about three miles west of Fowler by a teamster, whose name is unknown to him, about Dec. 20. He adds that he never saw but one other bird of this kind. It was caught near Reynolds, White County, Ind., by Mr. Linck, a night watchman on the Panhandle R. R., in March, 1869. He adds, "it lived three or four days and died in my possession, but was not preserved."

The fourth was received by the taxidermist, about Dec. 20, from Mr. A. C. Littleton, Pickard, Ind. It was caught alive by Mr. Abel Christy, about three fourths of a mile north of that place, Dec. 10, and was kept alive until it was sent to be mounted, but died on the road.

Prof. E. L. Moseley, Sandusky, O., informs me that the four specimens he reported were taken within 20 miles of Sandusky, Dec. 19, 1896.

A fine adult male was taken by a twelve year old boy on the Iroquois River, Iroquois Township, Newton County, Ind., one and a half miles from Foresman, near what is known as the old Indian ford, Dec. 31, 1896. It was shipped to a firm on South Water Street, Chicago, where Mr. F. M. Woodruff obtained it, and it is now in his collection. He obtained the information given above from the postmaster at Foresman, Ind., and kindly sent it to me.

The 'Bulletin' of the Michigan Ornithological Club, January, 1897, p. 10 refers to a Murre identified as *Uria troile*, which Mr. N. A. Wood informs me is shown by reexamination to be *Uria lomvia*. The specimen is an adult male and was shot from a flock of several near Gibraltar, Mich., Dec. 26, 1896, by some duck hunters. The specimen is, I understand, in the museum of the University of Michigan at Ann Arbor. In the same publication, on page 8, is a reference to two "Black Guillemots" taken at the St. Clair Flats near Detroit, Mich. From a letter received from Mr. W. A. Davidson, Detroit, Mich., I gather that one of the two birds noted is in the possession of Mr. C. Havens of that city. The other

belongs to a lighthouse keeper, whose name he does not know, at the St. Clair Flats. Evidently both specimens are *Uria lomvia*. It is possible a careful examination of the specimens will show that these also belong to this species.

Brünnich's Murre has, as I have been informed, been reported the present winter from other interior localities. It has I believe, however, never before been authentically reported far from the ocean. Mr. Robert Ridgway informs me that they have this winter ranged down the Atlantic coast as far as South Carolina. It would seem probable that some storm had driven them far out of their usual range. Evidently those noted herein were carried inland and dispersed about the same time, perhaps by the same storm. They were all taken within a few days. Only twenty-one days elapsed from the date when the first was obtained until the last was in the hands of a naturalist. This is its first record from Indiana, except that reported by Mr. Warner which, unfortunately, is not verified by the specimen. It will be of interest to hear of other records of the occurrence of this species inland. It will be noted that there is a specimen preserved in a public museum in Indiana and in Michigan to verify the records from those States. It is to be hoped that one of the Ohio specimens may be secured for a like purpose.

2. *Numenius longirostris*. LONG-BILLED CURLEW.—Last fall there was a specimen of this bird in the store of Mr. Fletcher M. Noe, Indianapolis, which he informed me was taken by Mr. Herman Eckert, Apr. 2, 1896, in a swamp near Jasper, Dubois County. Mr. Frank M. Woodruff, notes a specimen from Liverpool, Ind., in his collection, in 'The Auk' for April, 1896, p. 181.

3. *Macrorhamphus griseus*. DOWITCHER.—Mr. F. M. Woodruff writes me that he has a bird of this species in his collection taken at Liverpool, Ind., Sept. 9, 1892. When shot it was flying alone over the Little Calumet River. First Indiana record.

4. *Tringa canutus*. KNOT.—To Mr. F. M. Woodruff I am indebted for the first record of its occurrence in Indiana. He informs me that he found a single specimen in a flock of Sandpipers on the beach near Millers, Lake County, Indiana, Aug. 24, 1896. The specimen is "in the light grayish juvenile plumage, with scale like markings on the back of pure white."

5. *Tringa bairdii*. BAIRD'S SANDPIPER.—The first specimen of Baird's Sandpiper, so far as is known, that was taken in Indiana was obtained by Mr. W. O. Wallace at Wabash, Ind., Aug. 26, 1893. Mr. Woodruff writes me that among a flock of Sandpipers seen at Millers, Ind., Aug. 24, 1896, there were several, probably five, of these birds. From Michigan there are but two records (The Auk, April, 1896, p. 174 and July, 1896, p. 225). From Ohio there are perhaps a half dozen records (Wheaton, Birds of Ohio, 1882, p. 473-475).

6. *Ampelis garrulus*. BOHEMIAN WAXWING.—Mr. J. E. Beasley, of Lebanon, Ind., who formerly lived in Indianapolis, says about forty years

ago, one spring, he took 19 Bohemian Waxwings in one day near the latter city. They were in one flock and were flying forward and backward over White River catching insects after the manner of Flycatchers.

7. *Ionornis martinica*. PURPLE GALLINULE.—Prof. E. L. Moseley informs me of the capture, near Sandusky, O., of a Purple Gallinule April 28, 1896. Although it has several times been reported from that State, I believe this is the first time its capture in the vicinity of Lake Erie has been noted.

8. *Buteo borealis harlani*. HARLAN'S HAWK.—Mr. R. B. Williams, Lebanon, Ind., has in his possession a fine specimen of this Hawk. It was shot and its wing broken, by Mr. W. H. Moler of the same city, in Perry Township, Boone County, Indiana, in September, 1887. He brought it while it was alive to Mr. Williams, who mounted it. This is the first record of the Black Hawk from Indiana. In Illinois, Mr. C. K. Worthen shot one of a pair on the Mississippi River near Warsaw, Hancock County, in 1879. I have in my collection the skin of a specimen taken several years ago by Mr. W. S. Everhart of Toledo, Cumberland County, Ill., in that county, and by him presented to me.

9. *Fregata aquila*. MAN-O'-WAR BIRD.—I had the pleasure last fall of examining in the office of Mr. J. E. Beasley, the well known taxidermist at Lebanon, Ind., a fine specimen of a young male of this species. It was killed by Mr. W. S. Patterson, near Shelbyville, Ind., July 14, 1896, and the next day was received by Mr. Beasley. The following are the measurements taken from the mounted specimen. Length, 36 in.; wing, 24 in.; tail, 16 in.; depth of fork, 7 in.; bill, 4.25 in. This is the first record for Indiana. The only other record for the Ohio Valley is a specimen taken in Fairfield County, O., in the spring of 1880 (Davie, Nests and Eggs of N. A. Birds, 1889, pp. 59, 60).

DESCRIPTION OF A NEW SPECIES OF GUILLEMOT FROM THE KURIL ISLANDS.

BY LEONHARD STEJNEGER.

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WHILE visiting some of the Middle Kuril Islands during the summer of 1896 I was much puzzled by a black-winged Guillemot, which at first I mistook for Pallas's *Cephus carbo*, especially

since the Kurils have been given as the particular habitat of this black-winged species. I soon found, however, that not only the pale eye ring of the latter was absent but also that the proportions were entirely different, in fact that I had to deal with an undescribed form more nearly related to *Cephus columba* than to *C. carbo*. The latter I did not see at all in the Kurils. The many puzzling and contradictory statements regarding Kuril Islands specimens by Blakiston and by Seebohm have thus received an easy and satisfactory solution.

It gives me great pleasure to name this species for Capt. H. J. Snow, of Yokohama, the distinguished explorer of the Kuril Islands.

***Cephus snowi*, sp. nov.**

Diagnosis. — No white area surrounding the eye; wings entirely black, or with narrow white tips to the larger coverts, forming at most three narrow white bands; under wing-coverts smoky gray; black of back with a slate-colored gloss; 14 tail-feathers.

Habitat. — Kuril Islands.

Type. — U. S. Nat. Mus. No. 159,351. Raikoke Island, Kurils, August 23, 1896. L. Stejneger coll. no. 7009.

Dimensions of Type: — Wing, 181 mm.; tail-feathers, 54 mm.; exposed culmen, 32 mm.; height of bill at nostrils, 10.5 mm.; tarsus, 33 mm.; middle toe with claw, 46 mm.; total length, 344 mm.

In addition to the type I collected 3 other specimens on the Mushir Rocks. I have also examined two specimens from Urup in the Science College Museum, Imperial University, Tokyo, through the kindness of Dr. Ijima. I remember also to have seen a specimen in the American Museum of Natural History in New York, said to have come from Kamchatka. It was probably collected by Capt. Snow. When I examined this specimen many years ago I took it to be a melanistic individual of *C. columba*.

GENERAL NOTES.

Murres in Western New York.—Writing from Geneva, N. Y., Mr. L. Clark states that a specimen of *Uria lomvia* was killed on Seneca Lake, December 23, 1895, a second in May, 1896, and a third on December 26, 1896. He also reports that J. S. Baker, a taxidermist at Geneva, has had several specimens of the same species brought him by hunters for mounting and that numbers had been seen on the lake during the winter of 1896. Previous to December 1895, the bird was not known to occur.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City*.

Unusual Occurrence of Brünnich's Murres at Beverly, New Jersey.—During the occurrence of the heavy gale which prevailed along the coast about the middle of December, 1896, great numbers of Brünnich's Murres were seen and shot at different points along the Delaware River. On the 15th a boy shot one from the shore at Edgewater Park, the skin of which was preserved. The next morning I witnessed several flocks of fifteen or twenty birds each flying up the river, and secured two specimens. During the afternoon they returned in scattered flocks numbering about three hundred. A flock flew over my boat while crossing the river, low enough to have been struck with an oar. Those which remained about the river during the day to feed, were quite tame, and could be easily approached without alarm. One was also shot further down the river at Palmyra, and I was informed, several above Burlington.—J. HARRIS REED, *Beverly, N. J.*

Brünnich's Murre (*Uria lomvia*) at Newberne, N. C.—While in eastern North Carolina during the holidays I secured a specimen of Brünnich's Murre at Newberne. It was killed in the river near there the 22d or 23d of December. To make more sure of its identification I sent a description of it to Mr. Robert Ridgway who replied that my specimen is *Uria lomvia*. I can find no record of it having been taken in the State before.—T. GILBERT PEARSON, *Guilford College, N. C.*

Brünnich's Murre and King Eider at Cape Charles, Virginia.—Two specimens of Brünnich's Murre (*Uria lomvia*) were taken at Cape Charles, Virginia, and six others seen, Dec. 17, 1896. At the same locality, on Jan. 2, 1897, a King Eider (*Somateria spectabilis*) was taken. I exhibited the King Eider and one of the Murres at a meeting of the Delaware Ornithological Club, at the Philadelphia Academy of Natural Sciences. As far as I can ascertain, this is the most southern recorded capture of the King Eider.—WILLIAM L. WHITTAKER, *Cedar Grove, Philadelphia, Pa.*

Uria lomvia in South Carolina.—My young friends Rowland and Herbert Nowell have sent me a specimen of Brünnich's Murre taken near Anderson, S. C., Dec. 19, 1896. Anderson is the seat of the county of the same name, in the extreme northwestern portion of the State, lat. about $34^{\circ} 36' N.$, long. $5^{\circ} 38' W.$ from Washington, not far below the Blue Ridge, and about 196 miles from the nearest point on the sea-coast, which would be in the vicinity of Beaufort. The bird was captured about three miles southwest from the city, in an open field near a creek. It was found by a hunting dog, which pointed it and then ran up to it; the bird pecked at the dog, and also at the man who came to pick it up. It could not fly, though it showed no bruises or evidences of injury when, having been kept alive till the 23d, and fed on raw meat, it died and was skinned. The specimen is a bird of the year, identical with various others I have compared in the U. S. National Museum. Bill black, small, perfectly smooth, with a rather sharper gonydial angle than usual; eyes brown, feet light brown. Length 15.75; extent 28.75; wing 7.70; tail 2, rounded; culmen 1.20; gonys 0.63; height of bill 0.42; width 0.27; tarsus 1.30; middle toe and claw 1.96. (Fresh measurements by the Messrs. Nowell.) Plumage as usual for this age and season.

This is, I think, the first record of the species for South Carolina. The individual is one of what must have been a large flight of these birds about the middle of last December. 'Forest and Stream' of Feb. 6, 1897, notes one taken Dec. 17, 1896, and another Dec. 19, 1896, both at Cape Charles, Va., where also was a King Eider taken Jan. 2, 1897. I hear of a number of other cases of Brünnich's Murre beyond its ordinary range about this time; some of them will doubtless reach 'The Auk' with this one. On looking up the weather record, I find that there was an area of atmospheric depression at Charleston, S. C., at 8 A. M. of Dec. 15; it travelled rapidly northeastward on the 15th and 16th, and was severe along the coast from N. C. to Maine on the night of the 15th, on the 16th, 17th, and part of the 18th. This storm-center evidently caused the dispersion of comparatively large numbers of northern sea-birds inland, far beyond their normal flights.—ELLIOTT COUES, *Washington, D. C.*

The Terns of Dyer's and the Weepeeket Islands.—On June 23, 1896, I landed on Dyer's Island in Narragansett Bay, a small island of some twenty acres in extent and covered on the lowlands with beach grass and on the uplands with blackberry (*Rubus canadensis*) and bayberry (*Myrica cerifera*).

Before landing I could see a few Terns hovering above the island; there proved to be, however, some ten pairs inhabiting it, as a number of counts made twenty birds in the air after I landed, and I believe that they do not wander far during the day.

The Terns were all Wilson's (*Sterna hirundo*), and I found but one nest on the island, which contained three eggs; it was a typical nest, — a few grasses on the sand amid the beach grass. The eggs would have hatched

in another two days. This small colony has inhabited the island for a great many years and as they are not disturbed will undoubtedly continue to do so. It is the only colony in Narragansett Bay.

On June 27, 1896, I visited the Weepeeket Islands in Buzzard's Bay. There are three islands in this group—Great and the two Little Weepeekets. I landed first on the most eastern of the two little ones, an island of about an acre in extent. This island has been slowly cut away by the action of the sea until now it presents a plateau-like appearance, some ten feet high, surrounded by a narrow rocky shore. Although as I approached the island at least fifty Terns arose from it, I found but three nests, all containing two eggs each; these nests were placed on the edge of the plateau and were quite well hidden among grass and poison ivy (*Rhus toxicodendron*).

The Roseate Terns (*Sterna dougalli*) were apparently the only inhabitants of this island, their long tail-feathers, bills, and harsh cries, beside the appearance of the eggs, proved their identity.

I next landed on the other Little Weepeeket, an island resembling almost exactly its neighbor in size, topography, etc., and from which rose about the same number of Terns; however, there proved to be a few Wilson's in addition to the prevailing species, the Roseates, inhabiting this island, as was proved by my finding a typical set of three eggs on the beach above tide water. Three other nests were found, all Roseates (?), and containing two eggs each; one of these was on the beach and the other two along the edge of the plateau and buried among scrubby poison ivy which covered thickly and entirely the whole crest of the island. The two sets on the beach were perfectly fresh.

It was not until June 30 that I landed on Great Weepeeket, the most western of the three islands and of some twelve acres in extent. Its uplands are covered with scrub sumac (*Rhus copallina*?), low barberry, blackberry, mullein (*Verbascum thapsus*) and yarrow (*Achillea millefolium*), and beach grass (*Ammophila arundinacea*). The southeastern shore of the island is a continuous beach, while the northwestern side is a steep bank cut away by the action of the sea. The southerly and northerly ends of the uplands are composed entirely of sand and covered with a sparse growth of beach grass. These sandy points, and in fact almost all the upland, are inhabited by a great many mice and their runways are to be seen in every direction. I was unable to get any specimens for identification. Beside a few Song Sparrows (*Melospiza fasciata*), Spotted Sandpipers (*Actitis macularia*), a nest of which contained four hard set eggs, and a pair of Kingfishers (*Ceryle alcyon*), whose nest my companion dug out and found to contain eight pin-feather covered young, the Terns were the sole inhabitants of the island.

I checked off the eggs on the uplands and found, two nests containing no eggs; three nests containing one egg each; seven nests containing two eggs each; twelve nests containing three eggs each; one nest containing four eggs, and one dropped egg, and one Wilson's chick (?) in down.

On the beach I found three nests containing one egg each; two nests containing two eggs each; three nests containing three eggs each: total thirty-five nests, two empty, one containing a chick, six containing one egg each, nine containing two eggs each, fifteen containing three eggs each, and one containing four eggs, and one dropped egg,—seventy-four eggs all told.

The nests on the uplands were in almost every case placed near or at the base of the scattered boulders, and on the beach on the sea weed. The colony consisted of perhaps two hundred Terns, the majority Roseates; but as the Terns on the three islands all gathered over one when walking about the island, and others are off fishing, a correct estimate is impossible. As far as I could ascertain there were no Arctics (*Sterna paradisæa*) breeding on the islands.

The whole Weepectet colony, including the three islands, had therefore forty-two nests and eighty-nine eggs on them.

In 'The Auk,' Vol. IX, 1892, page 226, in an article entitled 'Habits of the American Herring Gull (*Larus argentatus smithsonianus*) in New England,' by Mr. George H. Mackay, there is an account of a nest of the Herring Gull having been found on the middle Weepectet Island, though I believe this record may be questioned.

Through the kindness of Mr. Edward Sturtevant I was enabled to land on these islands. — REGINALD HEBER HOWE, JR., *Longwood, Mass.*

The Nostrils of Young Cormorants.— Acting upon a suggestion recently made by Mr. Frederic A. Lucas (*Auk*, XIII, p. 172), I examined on July 16 a very large colony of Farallone Cormorants nesting on San Martin Island, Lower California, to ascertain, if possible, at what age the nostril becomes closed.

This colony had been so often disturbed by the guano schooners that even at this late date many nests contained fresh eggs; while young birds, ranging from those but just hatched to nearly full grown, were found by thousands.

In the newly hatched young, which were blind, the nostril was a mere slit, scarcely noticeable, but those a few days old showed a well developed orifice, which exhibited no sign of closing in the largest young I could find, nearly as large as their parents, but not half fledged.

As the Cormorants were driven from their nests a horde of screaming Western Gulls, which followed us all about the island, swooped down upon the nests carrying off eggs or young, as they might happen to contain. A preference was shown for squabs but a few days old, which were instantly swallowed whole.

So great was the destruction caused by our presence that I withdrew from the nesting ground sooner than I otherwise would have done.

At some distance from the Cormorant rookery I found a three-quarters grown Western Gull endeavoring to swallow a young Cormorant that had doubtless been brought by the old Gulls from some of the nests I had but just visited. — A. W. ANTHONY, *San Diego, Cal.*

The Canvas-back Duck in Massachusetts.—Four specimens of this species (*Aythya vallisneria*), two of each sex, were shot in Silver Lake, Pembroke, Plymouth County, Dec. 18, 1896, from the stand of Mr. Thomas Arnold of North Abington. I have seen a pair of them that he has had mounted. There were five in the flock. Mr. Arnold authorizes me to report this capture.

A single Canvas-back, a male, was seen by Mr. J. E. Bassett in Nippenick Pond, Bridgewater, Nov. 26, 1896, accompanying two Dusky Ducks (*Anas obscura*). The three swam almost within gunshot of the stand, allowing a protracted scrutiny of them through a field glass, and another later in the day. Mr. B. has shot hundreds of Red-heads, and at once saw that this was a different bird, and described to me all the characteristics of *A. vallisneria* with perfect accuracy. These, with other reported occurrences, indicate a phenomenal flight of the species in Massachusetts in the late fall of 1896. — HERBERT K. JOB, *North Middleboro', Mass.*

Type Locality of *Fuligula collaris*.—It has sometimes happened in the annals of ornithology that a species has been discovered or first described from a locality remote from its subsequently ascertained normal range—I do not mean by mistake, such as that which originated *Picus cafer* for a Mexican bird, supposed to be South African, but from actual capture of an individual far from its proper habitat. We have a striking case of this happening to Barrow's Golden-eye, properly a North American bird, of only casual occurrence in the locality whence its name *islandica* is derived. In fact, the original appearance of this bird in print is as the *Clangula* of Brisson, Orn., 1760, VI, p. 416, pl. 37, fig. 2, where it is incontestably described and figured, along with a copious synonymy of the Common Golden-eye or Garrot, which Brisson thought he had in hand, though his bird was actually a Barrow's Golden-eye, in the Réaumur Cabinet. This is clear from the description of the white eye-spot, which Brisson says is "*versus synciput in acumen producta*"—runs up to the forehead in a point, and his plate shows the point plainly. Another case, which it is the object of this note to explain, is the original naming and describing of the Ring-necked Duck from a British-killed individual, far from its normal range, in one part of which, however, the bird had before been actually discovered. As is well-known, *Anas collaris* of Donovan was first named and published in 1809 (Brit. B. VI, pl. 147), upon a specimen taken in England (found fresh in Leadenhall Market, if my memory serves me rightly). But before that date, near the mouth of the Columbia River, this species was discovered by Lewis and Clark. It is described with unusual particularity by them, in the orig. ed. of Biddle's History of the Expedition, Vol. II, 1814, p. 195; but the description as then rendered was so mangled by the ostensible editor, Paul Allen, that it became almost unrecognizable, and it was not until I examined the explorers' original MSS. that what they meant was made clear: see my ed. of 1893, p. 888. The bird was killed by one of their men at Deer Island

in the Columbia, a little below the mouth of the Willamette, March 28, 1806; and the description in full is found in Codex Clark Q 81-83, Codex Lewis K 10. This is unmistakable. The bird is smaller than the duckinmallard (*Anas boscas*); head and neck purplish-black; belly and breast white; flanks of a pale dove-color with fine black specks; beak remarkably wide; . . . "a narrow stripe of white garnishes the base of the upper chop; this is succeeded by a pale sky-blue color, occupying about an inch, which again is succeeded by a transverse stripe of white, and the extremity is a fine black," etc. This is obviously diagnostic of *Fuligula collaris*, even though no mention is made of the orange-brown collar, which was either overlooked, or not developed in the specimen handled. I have of course set forth the case in my work as cited, but this note will serve to throw it into the current of ornithological literature, to which the celebrated History does not distinctively pertain. No question of nomenclature is raised; the matter is simply historical.—ELLIOTT COUES, *Washington, D. C.*

Daflula, a New Subgenus.—Type *Querquedula eatoni* Sharpe, Ibis, 1875, p. 328, Kerguelen Island.—ELLIOTT COUES, *Washington, D. C.*

The Lesser Snow Goose in New England.—I have lately added to my collection three New England specimens of the Lesser Snow Goose (*Chen hyperborea*); one taken at Toddy Lake, Maine, October 4, 1893, by Mr. Alvah G. Dorr of Bucksport, Maine, another at Lake Umbagog, Maine, October 2, 1896, by Mr. Charles Douglass, the third at Ipswich, Massachusetts, October 26, 1896, by a local sportsman who sent the bird in the flesh to Mr. M. Abbott Frazar of Boston. The specimen first named was not sexed; the other two birds were males. All three are young in fresh autumnal plumage and all are perfectly typical examples of *hyperborea* which, evidently, is of much commoner occurrence in New England than the large form *nivalis*.

The Umbagog specimen was accompanied by a young Blue Goose (*Chen caerulescens*) which was also killed, both birds coming into my possession less than an hour after their death.—WILLIAM BREWSTER, *Cambridge, Mass.*

Branta bernicla glaucogastra.—While I was in London in 1884 I examined with Mr. Seebohm his collection of Brant Geese, and was favorably impressed with his view that there are three recognizable forms, two of which occur in North America, though neither of these is the ordinary Brant of Europe. We have the two extremes of the White-bellied and Black-bellied, between which typical *B. bernicla* is intermediate. It is probably because we have only compared these extremes that we have found *B. nigricans* so decidedly different from what we call *B. bernicla*. The stock is one of the most thoroughly circumpolar of all birds, perhaps more decidedly hyperborean than any other excepting

Rhodostethia rosea; it breeds only within the Arctic circle, and even beyond lat. 82°. The Brant stock has differentiated along three lines, now recognizable, and fairly well represented in different longitudinal areas. The most distinction has been acquired by *B. nigricans*, in which, besides the black belly, there is a large and nearly complete white collar, shown by neither of the other two; in other words, the Black Brant buttons its collar in front, and wears a black vest. This is probably a specific character. Waiving the question of taxonomic rank, I wish to call attention to the fact that, as shown by Mr. Seebohm (Hist. B. B., VI, p. 508, 1885), two races of *B. bernicla* are distinguishable, and ours is the one which needs a name. It is true that the difference between them is not great, and not strictly correspondent with geographical distribution; and that Salvadori makes no distinction (Cat. B. Br. Mus., XXVII, 1895, p. 119). But a difference does exist, it is to some extent geographical, and I could name perhaps fifty birds in the A. O. U. List with no better claim to recognition by subspecific name. The white-bellied bird, largely or mainly North American, is *Bernicla glaucogaster* Brehm, Isis, 1830, p. 996, *nomen nudum*; *B. brenta*, a. *glaucogaster* Bp., C. R., 1856, p. 648; and *Anser brenta glaucogaster* Seebohm, l. c., where the distinction is pointed out in the following terms: "In the Taimur peninsula, in Nova Zembla, Franz-Joseph Land, and Spitzbergen typical *Anser brenta* breeds, having the under parts generally as dark as those of the Pacific species [our *B. nigricans*], but with the white on the sides of the neck not meeting in front. In Arctic America, from the west coast of Greenland as far west as the Parry Islands, and north of lat. 73° as far as land is known to extend, the white-bellied form of the Brent Goose (*Anser brenta glaucogaster*) breeds; it has the underparts below the breast almost pure white and the white on the sides of the neck does not meet in front. Both the two latter races and intermediate forms between them occur on our [British] coasts; but the white-bellied form is much the rarer of the two." This is in substance the evidence upon which I propose that we recognize *Branta bernicla glaucogastra* in the A. O. U. List. — ELLIOTT COUES, Washington, D. C.

The Wood Ibis in Virginia and Maryland. — On July 20, 1896, an adult *Tantalus loculator* was killed by Mr. Rudolph Thiele in his barnyard at Silver Hill, Maryland, near the District of Columbia line. There were two; the other, an immature bird, flew away about half a mile and was killed soon afterwards on the same day by Mr. Arthur Suit of Suitland. Both were mounted for the above named gentlemen, and I saw the fresh skins. On the 27th of the same month another, an immature female, was shot in an oat field near Laurel, Maryland, and sold to and mounted by Mr. Geo. Marshall of that place, in whose collection it now is. On July 18, 1896, three others, an adult and two immature birds, were shot by two boys at Vinitarville, Goochland County, Virginia, and the wings and

other parts forwarded to the National Museum by Mr. R. S. Allen for identification.

I have a cutting from a Richmond, Virginia, paper, name and date unknown, which notes the occurrence in New Kent County of four Wood Ibises, one of which was shot by Mr. W. J. Taylor and the head and wing exhibited in Richmond. The date was evidently the summer of 1893. Two, an adult and a young, were killed in Washington, July 2, 1892, as previously mentioned in 'The Auk,' (X, 1893, p. 91).—WILLIAM PALMER, *Washington, D. C.*

A North American Snipe New to the A. O. U. List.—Swainson in Sw. and Rich., *Fn. Bor.-Am.*, II, 1831, p. 501, describes *Scolopax leucurus* sp. n., from Hudson Bay, and says that "a single specimen of this bird in fine and perfect plumage, exists in the British Museum." It is a large species with 16 rectrices, whereof the three outer pairs are almost entirely white. Swainson's type is still extant in the British Museum, and has been identified with *Gallinago major* by Dr. Sharpe, who cites *S. leucurus* among the synonyms of this species, and catalogues Swainson's type from "Hudson's Bay" (*Cat. B. Brit. Mus.*, XXIV, 1896, p. 628 and p. 631). The specimen appears as one of a large lot acquired by the British Museum by purchase from the Hudson Bay Company many years ago, to none of which does any doubt of locality attach; and as there is obviously no reason to call Dr. Sharpe's identification in question, we may rely upon the record for the following addition to our Check-List:

[230.1.] *Gallinago major* (Gm.).

Greater Snipe.

Scolopax major Gm. *Syst. Nat.* 1, 1788, p. 661.

Gallinago major KOCH, *Syst. Baier. Orn.* 1816, p. 313.

GEOG. DIST.—Europe, Asia and Africa. Accidental in North America ("Hudson Bay").

There may be a question about the specific name of this bird, under our Procrustean rules. According to Dr. Sharpe's synonymy, it is *Scolopax media* Frisch, 1763, and *Gallinago media* Gerini, 1773—both antedating Gmelin's *S. major*. Dr. Sharpe sensibly passes over *media* and adopts *major*—for to call a bird *media* in Latin and Greater or Double Snipe in English would be absurd. I hope some way can be found to square common sense with the Code in this case—if it cannot be, so much the worse for the latter.—ELLIOTT COUES, *Washington, D. C.*

The Occurrence of *Tryngites subruficollis* in the New England States.—There are several instances of the capture of the Buff-breasted Sandpiper in Connecticut and Massachusetts which do not appear to have been recorded. This Sandpiper, although common in certain sections in the West, is not very often met with along the North Atlantic seaboard.

The latest occurrence of this species in Connecticut appears to have been a specimen taken by myself on September 30, 1895. A solitary individual was found on the Quinnepiac marshes, which are situated near New Haven, Conn. A very stormy condition of the weather had existed for two days, and it was not strange that a species of the *Limicolæ* was blown inland by the prevailing easterly winds. On a portion of the meadows an unfamiliar looking Sandpiper was observed feeding in the grass. It appeared to be a bird of the present species, and seemed restless and wary, but it was shot before it could fly off. The bird was picked up, and found to be a Buff-breasted Sandpiper (*Tryngites subruficollis*), in the young plumage. No other birds of the Snipe family appeared to be in the vicinity. This record seems to be the second or third instance of the capture of this species in Connecticut, at least in recent years.

One of the previous instances may not have been recorded; a young bird was shot in the latter part of August, 1889, by Mr. Edward L. Munson, of New Haven, in almost exactly the same locality as that in which my specimen was taken.

In Massachusetts there have been a small number of these Sandpipers killed. Mr. George W. Mackey, of Nantucket, Mass., mentions in 'The Auk' (Vol. IX, 1892, p. 389) the capture of a few specimens on that island. Dr. Louis B. Bishop, of New Haven, informs me that he shot a young female Buff-breasted Sandpiper on Monomoy Island, Cape Cod, Mass., on September 19, 1895, and that another specimen was killed there by a market gunner on the same day.

Several more instances were reported some years ago from Cape Cod by the late Mr. J. C. Cahoon, of Taunton, Mass.

It has been taken several times on Long Island, N. Y., but the latest record in that locality seems to be August 28, 1888 (Auk, Vol. VI, 1889, p. 136).

The Buff-breasted Sandpiper is often found associating with the Pectoral Sandpiper (*Tringa maculata*) and it is to be looked for in flocks of the latter in the autumnal migrations. There are two instances of its capture in the Magdalen Islands, Quebec, Canada, where one individual was found on two occasions with a flock of Pectoral Sandpipers. The first instance was in September, 1888, the second in early September, 1890.

As most of the above records of the occurrence of the Buff-breasted Sandpiper in the East are spread over a number of years, the species must be considered as rather rare along the coast of the New England States. — C. C. TROWBRIDGE, *New York City*.

Status of *Helodromas ochropus* in the A. O. U. List. — This European straggler appears correctly as "Accidental in Nova Scotia," I presume upon strength of the Halifax specimen in the Seebohm Collection, now in the British Museum. But we have forgotten or at any rate ignored the fact that the species was duly entered as North American in the Fn. Bor-

Am., I, 1831, p. 392, "*Totanus ochropus*, the White-tailed Tatler" being formally described as such from a specimen from Hudson Bay in the British Museum. This specimen is extant, identified by Dr. Sharpe as *Helodromas ochropus*, and so catalogued from Hudson Bay (Cat. B. Brit. Mus., XXIV, 1896, p. 444), along with the Halifax one. For aught that appears to the contrary, we must recognize this record, and add "Hudson Bay" to Nova Scotia in our statement of the bird's North American occurrences.

While on this species, I may remark upon the claims of *Helodromas* to full generic rank apart from *Totanus*. I am not inclined to waste any time in discussing the difference between a genus and a subgenus, because I know there is none. Yet we have a sort of recognized convention or implication in the matter, chiefly for the purpose of being as consistent as we can regarding some degrees of difference which we rate as generic, and some lesser degrees we only allow to be subgeneric — just as we have in the cases of species and subspecies. *Helodromas*, I think, is quite up to the mark of an average genus — take them as they run in our List; and Dr. Sharpe thinks so too. Aside from some obvious proportions of external parts by which *Helodromas* differs from the type of *Totanus*, I may call attention to what may pass for "new evidence" in favor of generic distinction — not that it is new, except to our Committee in their official capacity. This is, that *Helodromas* differs from all its immediate allies in having the sternum single-notched — not a great matter, to be sure, in the order Limicolæ, where this bone is single-notched, or double-notched, or notched and fenestrate, but a useful character for generic distinction, like the presence or absence of a hallux, semipalmation or complete cleavage of the toes, etc. We may also recall in this connection the arboreal nidification of the Green Sandpiper — if nidification can be said of a bird that uses other birds' nests in which to deposit its eggs. On the whole, thinking we may safely and desirably treat *Helodromas* as a full genus, I propose this change in its status in our Check-List. — ELLIOTT COUES, Washington, D. C.

Status of the Redshank as a North American Bird. — There is a third record in the Fn. Bor.-Am., II, 1831, p. 391, which seems to require attention. This is that of the bird duly entered as *Totanus calidris*, "the Redshank or Gambet," and described from a specimen said to be from Hudson Bay, and at that time in the British Museum. I do not find it enumerated by Dr. Sharpe, nor does he cite this reference to *Totanus calidris* in his synonymy of the species. This leaves a cloud on the title of the Redshank to be considered North American; but the case is identical with those of the Greater Snipe and Green Sandpiper above discussed, in so far as the face of the original record is concerned. I think we should hardly ignore this, even though the specimen is not forth coming to speak for itself. We hardly find the joint authors of the Fn. Bor.-Am. at fault on a point like this, and they are little likely to have been mistaken

about such a common bird as the European Redshank or Pool-snipe. There is also no inherent improbability of the alleged occurrence at Hudson Bay of so wide-ranging a species, but quite the reverse; the probability is entirely in favor of the case as alleged. Under the circumstances the proper place for the bird would seem to be our Hypothetical List; and as a candidate for that position its claims are quite as good as those of various birds which have already found rest there. I would therefore propose the following addition, *ex hypothesi*, to the Check-List, p. 326:

11.2. *Totanus totanus* (LINN.).

Common Redshank.

Scolopax totanus LINN. Syst. Nat. I, 1758, p. 145.

Totanus totanus —

GEOG. DIST. — Europe, Asia, and Africa. Described as North American from a specimen said to have been taken on Hudson Bay and transmitted to the British Museum (Sw. and Rich., Fn. Bor.-Am. II, 1831, p. 391).

I have only to add that this record is clear of all confusion with the case of the "White Redshank from Hudson's Bay" figured by Edwards, pl. 139, and by him considered as an albino. But if this be admitted in evidence, it supports the case now presented. — ELLIOTT COUES, *Washington, D. C.*

The Avocet (*Recurvirostra americana*) at Ipswich, Mass. — I take pleasure in reporting the capture of three American Avocets, on Sept. 13, 1896, at Ipswich Neck, Ipswich, Mass., by Mr. A. B. Clark of Peabody, Mass. The birds were brought into the taxidermist establishment of Mr. L. W. Newell in Boston, where I saw them, and where I at last found out about their capture. There were but three birds in the bunch. They were not sexed when skinned. — FRED. H. KENNARD, *Brookline, Mass.*

The 1896 Migration of *Charadrius dominicus* and *Numenius borealis* in Massachusetts. — The prevailing winds on Nantucket Island during the greater portion of the migrating period was as follows: August 13, east and southwest; 14, east; 15, northeast; 16, southwest; 17, northwest; 18, west; 19 and 20, north; 21, 22, and 23, south; 24, southwest; 25, east; 26, southeast; 27, north; 28 and 29, southeast; 30, southwest; 31, southwest, with squall from the north in late P. M.; Sept. 1, north by west. There was no severe blow or storm during this period.

On August 22, at night, a few Golden Plovers were heard passing over Tuckernuck Island, where on the 28th the first one of the season was shot. Five were also seen on this same date at the eastern part of Nantucket. On the 31st sixteen Plovers arrived in a certain preserved field on the Kimball farm, where in a short time their number was somewhat augmented, at which time some were shot. When I visited the remainder, a little later in September, I counted twenty-two, the greater part of

which were young birds. They seemed at home and at ease in the field. As I walked towards them at a distance they stood erect and moved about; after I disappeared from their view all but two or three of them squatted with their breasts resting on the ground.

On August 31, I drove pretty much all over the Plover ground on Nantucket without seeing a bird. There was a gentle southwest air in the morning, with a squall accompanied with rain late in the afternoon — about five o'clock. Early in the evening I was told that a flock of Plovers had been seen coming in towards the north shore of Nantucket from the Sound, and still later I was again informed of several other flocks being heard, for it was now about 7.30 o'clock, dark, and raining moderately, accompanied with but little wind.

It would seem that birds of various kinds commenced to seek land at about this time, for considerable numbers were soon heard calling as they flew around the electric lights located at the tops of the high poles in various parts of the town. This calling was nearly continuous up to one o'clock, midnight, and I have only two or three times before heard such prolonged and continual calling of the birds. They were apparently bewildered, and seemed to pass around a certain light for awhile, and then pass to another, later coming back to the first one. I therefore think we heard the same birds over and over again. In order to substantiate this I made inquiry the next day of some of the life-saving crews located at different parts of the island, as also of others, but none of them had heard of any birds, and they were all apparently in a restricted area over the town. While no birds were seen *distinctly*, many of the call notes were recognized by others and by me, those of the Greater Yellow-legs (*Totanus melanoleucus*) predominating. There were also the Smaller Yellow-leg (*Totanus flavipes*), Golden Plovers (*Charadrius dominicus*), Hudsonian Curlews (*Numenius hudsonicus*) (heard only twice), Black-bellied Plovers (*Squatarola squatarola*), Terns and Peeps. Several of the sportsmen told me they heard the notes of the Eskimo Curlew (*Numenius borealis*). I am inclined to the opinion that they must have been mistaken, inasmuch as I was up until half past eleven o'clock P. M. and did not hear any of them. It was with the liveliest anticipations for the next day's shooting that I retired for the night. I arose at three o'clock A. M., and my disappointment can be imagined better than told when on looking out I found that the weather had cleared, the stars were shining and the little air that was moving was from the north. Although hopeless, I was driving over the western Plover ground at daylight, hoping I might find a few tired birds. Seeing absolutely no birds in this quarter up to eight o'clock, I picked up my decoys and drove eastward where I remained until 1.30 P. M. and then returned home without having seen a bird. On the way I saw a number of sportsmen, none of whom, I learned on inquiry, had seen anything. All the birds had passed on without stopping. This was the first defined migratory movement this season of birds going southward.

On Sept. 3, at night, some Plovers were heard as they passed over the town. On Sept. 9 a severe storm prevailed, wind east-northeast with heavy rain. On the 10th it was still storming with wind southeast, also raining very hard during the first half of the day, but clearing about noon. No birds were noted, nor did any land, so far as I know. On Sept. 13 and 14 still another very severe storm prevailed at sea. On the morning of the 16th I visited a number of the principal game stalls in Faneuil Hall market, Boston, Mass. In all of them were six Golden Plovers, one of which was a young bird.

No Eskimo Curlews have been received in the market from this coast this season, as far as I can learn, nor have I seen or know of one being authentically noted this season.

A number of *young* blue-legged Jack Curlew (*N. hudsonicus*) landed in Massachusetts during this storm, and a number were taken. I saw about thirty in the market and about a dozen were shot in Nantucket. During the storm high easterly gales prevailed along the southern New England coast on the 13th, the maximum wind velocity being 52 miles at Block Island, 33 miles at Boston, and 26 miles at Nantucket. This storm came from the sea, giving no previous warning. No Plovers or Eskimo Curlews could have been passing at the time, as otherwise they would have been forced to seek land for shelter from the elements.

Personally I have taken but four Golden Plovers this season, two of which were young birds. In addition to these perhaps one dozen more may have been shot on Nantucket and Tuckernuck Islands. On the north shore of Massachusetts, at Ipswich, one of the principal sportsmen there informed me he had seen and taken only one Golden Plover. There was no landing of Plover or Eskimo Curlews in that vicinity this season. He thought he saw four Eskimo Curlews very high up in the air flying on migration.

Some of the large game dealers in Boston, Mass., received *as usual* the past spring and summer, considerable numbers of these birds which had been taken in the Mississippi Valley while on their northern migration to their *breeding grounds*. Among them were large numbers of the Bartramian Sandpipers, which bird is already scarce as a resident on the New England coast. Are we not approaching the beginning of the end?
—GEORGE H. MACKAY, *Nantucket, Mass.*

Validity of the Genus *Lophortyx*. — It is well-known that in the *Gallinæ* the number of tail-feathers is a good clue to the genera. Excepting when very numerous — 20 to 32 — they are quite constant in the genera usually recognized, such a case as that of *Coturnix*, in which the rectrices are 10 or 12, being quite unusual. Our Grouse, for example, are well marked in this respect, though some have as many as 20 rectrices, and are not free from some individual variation in the numbers. In the *Odontophorinæ*, a compact group of *Perdiciidæ*, peculiar to America, the rectrices are invariably 12, except in the recently separated genus *Rhynchortyx*, which

has only 10, and in *Callipepla* proper, which has 14. *Lophortyx* has 12, like all the rest of the genera, excepting the two just named, and in my judgment should never have been united with *Callipepla* by the A. O. U. I propose that we restore it to full generic rank, on the ground of the difference from *Callipepla* in the number of rectrices, together with the remarkable peculiarity of the crest, and also the decided difference in the plumage of opposite sexes, as compared with the great similarity between the sexes of *Callipepla*. *Lophortyx* seems to me to be, in fact, one of the best characterized genera of Odontophorinæ; and *Callipepla* is unique in this subfamily in the number of its rectrices. — ELLIOTT COUES, *Washington, D. C.*

Notes on the Mexican Ground Dove. — Desiring to do what I can to free the A. O. U. Check-List of even the slightest blemishes, I may correct two errors which appear under *Columbigallina passerina pallascens*, No. 320 a, where "C 374, part" and "C 547, part" appears. The facts are otherwise. I believe I am the only author who has persisted in recognizing this subspecies ever since it was described by Baird in 1859; it is ignored in the A. O. U. List of 1886, and first given a place in the List of 1895. But it has stood unchallenged in the 'Key' since 1872; it is "C 374a" of my first Check-List, 1873, and "C 548" of my second Check-List, 1882, with the same separate number in all the eds. of the 'Key' since 1884.

No doubt many ornithologists share my regret, that *Chamæpelia* must give way, under our rules, to such a monstrous name as *Columbigallina*; but the peculiar atrocity of *Columbigallina* may not yet have dawned upon all of them. It is traceable back to the "Colombi-Galline" of the mendacious Levaillant, Oiseaux d'Afrique, VI, 1808, p. 98, pl. 278, the same being a fictitious bird of Africa, made up of the skin of a tame pigeon with artificial wattles: see Sund., Kön. Svensk. Vet.-Ak. Handl., 1857, p. 55, and Tent., 1873, p. 98; also, Salvad., Cat. B. Brit. Mus., XXI, 1893, p. 647. This miserable artefact became promptly the *Columba carunculata* of M. Temminck and Mme. Knip, and in due term spawned three bastard genera: *Verrulia* Fleming, 1822; *Creogenys* Gloger, 1842; and *Alectryopelia* Van der Hoeven, 1855. Such is the pity that our innocent little Ground-doves should expiate the original sin by bearing the stigma of such a name; and more's the pity that it is saddled on the patient ass of ornithological nomenclature. — ELLIOTT COUES, *Washington, D. C.*

Another Golden Eagle in Connecticut. — An adult male Golden Eagle (*Aquila chrysaetos*), weighing eight pounds and a half, alar extent seven feet five inches, now in my possession, was taken Jan. 19, at Salem, twelve miles west of this place towards the Connecticut River. It was trapped while feeding on the carcasses of sheep killed by dogs. Its tracks were seen the day before, and foot-prints similar to these were seen last winter

in the same locality. Possibly this Eagle was mate to the fine female whose capture was noted by Prof. A. E. Verrill of New Haven in the January 'Auk' (XIV, p. 891). — C. L. RAWSON, *Norwich, Conn.*

Northern Hawks in Massachusetts. — The American Goshawk (*Accipiter atricapillus*) has been abundant in this section the past fall and winter. I myself have secured three specimens, one of which I caught in a steel trap. All that I have secured or seen, except one, were in adult plumage.

On Feb. 25, 1897, I drove within ten yards of a Rough-legged Hawk (*Archibuteo sancti-johannis*), in the light phase of plumage, perched by the roadside on the edge of a grove of white pines. — HERBERT K. JOB, *North Middleboro', Mass.*

Swainson's Hawk in Michigan. — I wish to record the capture of a Swainson's Hawk (*Buteo swainsoni*) taken by myself in Cheboygan County, Mich., in October, 1883. I can find but three other records for the State. — NORMAN A. WOOD, *Ann Arbor, Mich.*

Note on *Elanus glaucus*. — Benjamin Smith Barton's 'Fragments of the Natural History of Pennsylvania,' published in 1799, is a folio of pp. xviii + 24, so rare as to be little-known or almost forgotten. Many ornithologists might never have heard of it, had it not been for *Hirundo horreorum*, which Baird adopted in 1858 for the Barn Swallow. But in 1878 I gave a careful analysis of this tract (B. Coll. Vall., pp. 592-594), which made all its ornithological points accessible; and had due attention been paid to this matter, we should not now have to change certain names which have obtained undeserved currency through the deservedly high authority of the A. O. U. Check-List. Some objections which have been urged against Bartram's names do not extend to those of Barton, who was a strict binomialist, and whose identifiably described species must consequently be recognized if they happen to fall under our rule of priority. One of these is "*Falco glaucus* of Bartram," whose name and sufficient description are repeated by Barton, with due binomiality on p. 11 of his work. "Now," as I observed (*l. c.*, p. 593), "those who decline to have anything to do with Bartram, on the ground of his untenable nomenclature, will necessarily observe that *Elanus glaucus* (Barton, 1799) must replace *E. leucurus*," as Vieillot's *Milvus leucurus* dates 1818. Our Committee can hardly plead ignorance of the fact that *E. glaucus* has also stood as the name of the White-tailed Kite in my 'Key' since 1884; for that would argue an incredible unfamiliarity on their part with current ornithological literature. The mistake may be regarded as an oversight which we can hasten to correct in the next Supplement to the Check-List.

Reference to the Bibliography above mentioned will reveal a number of other Bartonian names which need attention. For example, *Certhia familiaris fusca* (Barton, 1799); for Barton's *C. fusca*, fully described, antedates Bonaparte's *C. americana* of 1838, as the name of the American

Brown Creeper. True, it is itself antedated by *C. rufa*, Bartram, 1791; but the present temper of the A. O. U. Committee throws Bartram out of the case. — ELLIOTT COUES, *Washington, D. C.*

The Roadrunner as a Destroyer of Caterpillars. — In southern California the passion vine is everywhere infested by a red butterfly (*Agraulis vanillæ*), the larva of which feeds extensively if not entirely upon this plant. So great is the damage that plants are often completely defoliated and become so unsightly that in some regions many have destroyed their vines and replaced them with other species, less desirable perhaps but less apt to breed a horde of pests.

Not long since I called on a friend living in the suburbs of San Diego who had a large number of unusually thrifty passion vines climbing over his fence. Upon inquiring the reason of their freedom from what I had considered an inevitable pest, he informed me that a pair of Roadrunners (*Geococcyx californicus*) had for several months paid daily visits to his vines, climbing through them in all directions until the last caterpillar had been captured.

He said that he was satisfied that several newly hatched chickens had gone to satisfy hungry Roadrunners on one or two occasions when the vines yielded less than usual, but they were welcome to a chick once in a while for their very valuable service in keeping in check a pest that none of our other native birds seem to feed upon. — A. W. ANTHONY, *San Diego, Cal.*

How the Chimney Swift secures Twigs for its Nest. — Among some of the beautiful drawings of birds done by Mr. L. A. Fuertes, and submitted to my approval by the Messrs. Macmillan of New York, with reference to their publication in a work for which I am partly responsible, there was one which I 'held up' for further consideration. This represented a Chimney Swift in the act of snapping off a bit of twig with its feet, like a hawk seizing its prey. We have always supposed the bird secured the object with its beak, as it dashed past on wing at full speed; or at any rate that has been my own belief for more years than I can remember. But Mr. Fuertes vouched for the correctness of his representation from actual observation. The question being thus raised, I set it forth recently in a query inserted in one of our popular periodicals,¹ asking for information. I have received a number of replies, mostly corroborating the traditional belief, on what purports to be sufficient observation of the bird in the act. But Mr. Fuertes is supported in his view by Mr. Frank J. Birtwell, of Dorchester, Mass., from whose letter I quote: "In 1894 I spent the summer at Yarmouth, Nova Scotia, where the Swift is common, nesting in unused chimneys of the village. The bird flies to a tree, usually a spruce, and

¹ 'The Nidologist' for March, just to hand, contains (pp. 80, 81) several replies to my interrogation — and these leave the case still open!

alights on a dead twig, her weight or the action of her wings snapping it off. She then carries it off in her feet. Last May 23d a Swift flew to a willow near where I was standing, and snapped off a dead twig in the same manner." This is precisely the performance which Mr. Fuertes's drawing represents. — ELLIOTT COUES, *Washington, D. C.*

Probable First Description of *Empidonax flaviventris*. — It would seem unlikely that two such common birds as the Least and the Yellow-bellied Flycatcher could have slipped through the fingers of Wilson, Nuttall, and Audubon, and remained to be discovered by the Messrs. Baird in 1843. Of the two, the Yellow-bellied is the brightest colored and best marked in comparison with the Small Green-crested — the only one of the three which was characterized in Wilson's time; both Traill's and the Least being less likely than the Yellow-bellied to be discriminated from the Green-crested in those times. I find in Nuttall a notice which, it seems to me, can hardly be anything else than an indication of *E. flaviventris*. This is as follows, with italics for the most significant phrases :

"NOTE. We are acquainted with a third small species [of flycatcher] allied to the present [*Tyrannula pusilla* Sw.] and *acadica*, but distinguishable by the *superior brightness* of its plumage; being olive-green above and on the flanks. Rump, and beneath the wings almost *sulphur-yellow*, with a brightish bar also on the wings. This species does not appear to migrate much to the north of New York State." Nutt., *Man.*, orig. ed., Vol. II, 1834, App., p. 568.

Nuttall is here speaking of no imaginary bird, and not compiling a notice from somebody else. He knows such a bird, and he describes it at first hand — perhaps from memory, perhaps from observation in life without a specimen; but at any rate, his bird is a fact, and as such must be accounted for. He is also dealing with a true Flycatcher — not with any Warbler, or Vireo, or even Fly-catching Warbler of his genus *Sylvania* — all of which he is perfectly able to discriminate from any species of "*Muscicapa*" or "*Tyrannula*." In the orig. ed., I, 1832, he has the Phæbe, the Wood Pewee, the Olive-sided, and the Small Green-crested, all pat and by themselves, showing that he understands this group as something apart from Warblers, etc. In the Appendix to his Vol. II, 1834, when he had got hold of the *Fauna Boreali-Americana*, he adds to his list of true Flycatchers *Tyrannula pusilla* Sw., and *Tyrannula richardsonii* Sw., between which two species he interpolates the 'note' I have just cited. This fixes the position of his new bird as a 'Tyrannuline,' and I do not see what else it can be than *Empidonax flaviventris*; the description is a fairly good one, and certainly fits *flaviventris* better than it does any other species. Nuttall gives no name to his new bird, and in fact cancels his 'note' in his 2d ed., 1840, where the case drops out of sight altogether; so that no nomenclatural question is raised. But this fugitive 'note,' tucked away in the appendix to his Water Bird volume of 1834, and then disappearing seems to embody a curious bit of early history, worth pausing a moment to consider. — ELLIOTT COUES, *Washington, D. C.*

Two New Birds for Maine. — The United Ornithologists of Maine report the occurrence of two birds new to the State. The February number of the 'Maine Sportsman,' their official organ, published in Bangor, reported the taking of a Greater Redpoll, *Acanthis linaria rostrata* at Gardiner, Dec. 30, 1896, by Wm. L. Powers. The bird was shot from a flock of Lesser Redpolls, and the skin sent to Mr. Wm. Brewster, Cambridge, Mass., for identification.

The March number contains the account of a number of skins collected in the winter of 1878-79 by James Carroll Mead of North Bridgton. Mr. Mead was with Mr. Powers when the Greater Redpoll was captured, and on returning home and inspecting his collection, he deemed it wise to submit them to Mr. Brewster, who identified one as the *Acanthis linaria holboellii*, which decision was afterward ratified by Mr. Robert Ridgway of the Smithsonian Institution. — WM. L. POWERS, *Gardiner, Me.*

The Redpoll in Maryland. — Sunday, January 17, 1897, while walking in Druid Hill Park, Baltimore, I saw a highly colored male Redpoll (*Acanthis linaria*). When first seen it was perched in a tree about twenty feet from me, and after watching it for some time with a field glass, I tried to approach nearer, but when my eyes were off it for an instant it disappeared from view, and although I hunted it for quite a while I was unable to see it a second time.

I was surprised to see one, as I have only expected them during very severe weather, whereas we have not had such, the thermometer at the time registering 42°. — WM. H. FISHER, *Baltimore, Md.*

Bachman's Sparrow in Maryland. — While passing through an old scattered pine wood on April 29, 1896, near Kensington, Maryland, my attention was attracted by the loud and unfamiliar song of a Sparrow perched well up in an old dead pine top. I secured the bird, which turned out to be an adult male *Peucaea aestivalis bachmanii* in well worn plumage. Close by in another pine I crippled another which managed to reach the top of the tree and remained hidden in spite of my efforts to dislodge it. This is apparently the most northern record on the Atlantic Slope, and is a new addition for Maryland. — J. D. FIGGINS, *Washington, D. C.*

The Seaside Sparrow (*Ammodramus maritimus*) at Middletown, R. I. — In looking over a collection of land and water birds taken by Mr. Edward Sturtevant in Rhode Island, I found a specimen of a male Seaside Sparrow which he had shot near Gardiners Pond on the Second Beach Marshes in Middletown on July 18, 1889.

During the past summer I walked over these same marshes, but did not see a bird that justified shooting as a Seaside, among the many Sharp-tailed Sparrows (*A. caudacutus*) that inhabited the marshes. But on July 6, 1896, Mr. Sturtevant took a female *A. maritimus* on the marshes.

Personally, I think that a few of these Sparrows breed on the Middletown marshes yearly, and if this is a fact it moves their known breeding range sixteen miles to the northward, or in other words from Point Judith marshes to Middletown.

I cannot think that after breeding is over, which by July 6 could hardly be, the birds would roam sixteen miles to the northward across ocean. However, we have at least two records of their capture there; if nothing more. — REGINALD HEBER HOWE, JR., *Longwood, Mass.*

Henslow's Bunting (*Ammodramus henslowi*) **Found Breeding at Plymouth, Michigan.** — On July 27, 1893, while mowing grass in a hay field, I discovered a bird which by its peculiar song and habits was a new species for this locality. It had a nest, among the tall grass, which contained eggs, but unfortunately they were broken by the mowing machine. The bird was very uneasy, repeatedly hiding in the tall grass and only leaving its hiding place when the mowing machine knives were nearly upon it. It stuck to the standing grass until the last swath was cut, after which it would dive under the fallen hay, where I tried repeatedly to capture it alive, and after failing in this, I procured the specimen with a gun. After careful examination I pronounced it the Henslow's Bunting, but to make the identification sure, I later presented the specimen to the United States National Museum, and received the following in reply from Mr. Charles W. Richmond, Assistant Curator of the Department of Birds.

"In reply to your letter of the 2nd inst. [March 2, 1896] addressed to Mr. Ridgway (who is absent in Florida), I have to say that your identification of the specimen sent as a Henslow's Bunting is correct. This species ought not to be seen in Michigan. Cook's Birds of Michigan does not record any specimens taken in the State. The bird is very liable to be overlooked, but when once you learn its song you will be quite sure to find more of them. The eggs are quite uncommon in collections. Major C. E. Bendire, the Curator of Ornithology here, can give you more definite information on this point. We are pleased to accept your offer to give the specimen to the National Museum, and you will receive due acknowledgment in a few days."

I then sent the following description of the eggs to Major Bendire. Eggs white, dotted at the large end with reddish spots, and thinly dotted with reddish specks at the small end. Nest composed of fine dry grass, and lined with the same material. To this Major Bendire replied as follows:

"In answer to yours of the 9th inst., I have no doubt whatever that the nest and eggs you describe are those of Henslow's Bunting; your description of the same fits them exactly, and since you secured the bird at the same time (which I have seen), it makes this almost positive. There can be little doubt that the eggs in question are those of Henslow's Bunting; and so far as I know, I believe this is the first instance of this bird having

been found breeding in Michigan. We have but very few fully identified eggs of this species, and they are still rare in collections, and your find is a very interesting one."

During the past seasons since I found this bird, I have carefully searched the meadows for more specimens of Henslow's Bunting, but without success. The one which I found is now in the United States National Museum, and is labeled Henslow's Bunting (*Ammodramus henslowi*), Accession No. 30409. — JAMES B. PURDY, *Plymouth, Mich.*

Occurrence of *Zonotrichia albicollis* in California. — On October 27; 1896, Mr. Henry Ward Carriger of Sonoma, Sonoma Co., Cal., secured a specimen of the White-throated Sparrow, a male in almost full plumage. It was observed along a small creek at the edge of the foothills in company with several Golden-crowned Sparrows and greatly resembled them in its actions. The specimen proved to be well nourished, and is the first occurrence of this species recorded from Sonoma County, and adds another record of this bird for California. — C. BARLOW, *Santa Clara, Cal.*

How about the Genus *Pipilo* now? — I observe by the Eighth Supplement to our Check-List that we have officially adopted Mr. Ridgway's new genus *Oreospiza*, for that species which we have been calling *Pipilo chlorurus*. This is well, in my judgment; in fact, I could produce some manuscript, in my own handwriting, of date 1862, in which I took the bird entirely out of the genus *Pipilo*; though I never published that screed, chiefly because my mentor at that time, Professor Baird, was vexed at something I did with Bonaparte's genus *Kieneria*. But the present trouble is that in our Check-List, both eds., "*Pipilo*" *chlorurus* has been interjected forcibly in the middle of its supposed genus, with the black or green and white Towhees in front of it, and the brown Towhees behind it; with the interesting result, that *Oreospiza*, the heterogeneous element or unconformable factor in the case, now splits *Pipilo* apart! Our genera now run (1) *Pipilo*; (2) *Oreospiza*; (3) *Pipilo*. Our species run: No. 589, *Pipilo consobrinus*; 590, *Oreospiza chlorura*; 591, *Pipilo fuscus mesoleucus*. I gladly leave this case to the tender grace of any one who will admit his responsibility for putting "*Pipilo*" *chlorurus* in that fix. I decline to assume any responsibility myself; the bird will be found in several of my works since 1872 in what I took to be its proper position. — ELLIOTT COVES, *Washington, D. C.*

The Bahaman Swallow in Florida. — In a collection of birds purchased several years ago of Mr. W. E. D. Scott I have lately found a Bahaman Swallow (*Callichelidon cyaneoviridis*) the original label of which reads as follows: "Register 12558, W. E. D. Scott, Tarpon Springs, Florida, September 3, 1890; W. S. Dickenson." It is a young bird in practically

unmixed *first plumage* but with fully developed wings. The tail is shorter and less deeply forked than in old birds and the rectrices are worn and faded. Mr. Scott assures me that the data just quoted are in every way correct. He remembers the bird perfectly but had supposed it to be a young White-bellied Swallow which, indeed, it resembles rather closely but from which it may be at once distinguished by its much narrower tail feathers and by the lighter, grayer coloring of its head and back. It is, I believe, the second specimen which has occurred within the limits covered by our Check-List and the first that has been taken on the mainland of Florida. — WILLIAM BREWSTER, *Cambridge, Mass.*

Geothlypis agilis a Possible Breeder in Northern Minnesota. — There are points in common between the Carberry bog of Mr. Ernest E. Thompson (see Seton in 'The Auk,' April, 1884, p. 192) and one visited by the writer in the spring of 1893, near Hickory, Aitkin County, Minnesota, where several pairs were nesting, or at least had taken up their residence for the season.

With reference to the actual taking or discovery of nest and eggs of this bird, it is believed that the Manitoba record still remains unique.

Mr. Oscar B. Warren is of the opinion, however, that the Connecticut Warbler nests near Palmer, Michigan, a fledgling young being taken there by him on Aug. 10, 1894.¹

Near Hickory there are many tamarack swamps, but of the several inspected one only appeared suitably attractive for the needs of this shy bird, perhaps one of the least known of our Warblers, and so no doubt by his retiring and terrestrial habits and usually quiet ways, which render easy observation difficult. But to one quite familiar with its characteristic song or notes no such difficulty should exist, for *agilis*, as its name implies, is but seldom seen. The clean cut notes, the *Wheat! our-winter-wheat!* of this lusty songster, with the author thereof in evidence, once heard and seen will surely ever afterwards be remembered.

A mile or more south of Hickory is a typical spruce bog; it begins at the Mille Lacs post-road on the east and extends in a westerly direction possibly three-quarters of a mile, its greatest width being about one-eighth of a mile.

At the eastern end of the bog the trees are mainly of a young growth of the black spruce (*Picea madiana*) arranged in an open and park-like way and presenting a landscape unusually attractive and pleasant to look upon in the beauty of natural detail. The western extremity was largely given up to tamaracks. Many of the spruces were "grizzled with moss" (*Usnea*), and the ground beneath them covered by a dense growth of sphagnum, with here and there occasional patches of pitcher-plants.

It was here on the morning of June 21 that I first discovered my songsters, their loud and cheerful notes penetrating the then clear air,

¹ See 'The Auk', April, 1895, p. 192.

first greeting me near the eastern end of the bog, where I had left the roadway to investigate the source of some vigorous musical efforts on the part of a male Solitary Vireo whose song was then new to me. A short distance in among the spruces brought me to the apparent home of these Warblers.

Subsequent visits followed; *agilis* was as frequently in song and fully as difficult to find, for of the several heard but one was actually seen. So, too, a most careful search for the nest and eggs also proved of no avail, furnishing as it did to my mind, additional evidence of this bird's secretive ways in this its chosen breeding home.

With her network of innumerable lakes, ponds, rivers, creeks and swamps the northern part of Minnesota should furnish many such localities as this, and "in nesting time" a capital resort for the Connecticut Warbler.

With further investigation this will doubtless prove true of the pine land regions at least, and more particularly of those portions of the state falling within the limits of the Cold Temperate Subregion of Dr. Allen.

Other occupants of the bog were the ever present Peabodies, a pair or two of *Vireo solitarius*, some few specimens of the Purple Finch, and a number of high-colored males of *Dendroica blackburnia*, making in all, as it was, a most interesting gathering, and comprising with the trees and plants a high-class picture of intrinsic worth, one's admiration for which being easily sustained by the additional favored efforts of that post-graduate minstrel of our northern woods, the Hermit Thrush. Now softly, now louder, those exquisitely sweet though melancholy strains would come at times from out the shadier depths of the deeper woods and darkened thickets not so close at hand.—BENJ. T. GAULT, *Glen Ellyn, Illinois*.

Untenability of the Genus *Sylvania* Nutt.—My tacit acquiescence in our use of *Sylvania* has hitherto been simply because I had no special occasion to notice the matter, and presumed that our Committee had found the name tenable by our rules. But a glance at Nuttall's Man., I, 1832, p. 290, where the name is introduced, shows that it can have no standing, being merely a new designation of *Setophaga* Sw. 1827, and therefore a strict synonym. Nuttall formally and expressly gives it as such, making it a subgenus (of *Muscicapa*) in the following terms:

"Subgenus. — SYLVANIA.* (Genus SETOPHAGA, Swainson.)"

This is enough to kill it — say rather, the name is still-born; and why we ever undertook to resuscitate it passes my understanding. But let us assume, for a moment, that it looks alive, and see what the result will be. Nuttall puts in *Sylvania* birds of three modern genera: 1. The Redstart. 2. The Hooded Warbler, etc. 3. The Blue-gray Gnatcatcher. 1. The Redstart is already type of *Setophaga* Sw. 2. The Hooded Warbler, etc., are eliminated as *Wilsonia* Bp., 1838, and *Myiodiactes* Aud., 1839. 3. Leaving "by elimination" the Blue-gray Gnatcatcher as type of *Sylvania*,

of which *Poliophtila* Scl., 1855, thus becomes a synonym. A pretty kettle of fish this, for a *reductio ad absurdum*!

Sylvania must be dropped, and our choice of a name for the genus lies between *Wilsonia* Bp., 1838, and *Myiodioides* Aud., 1839. Use of *Wilsonia* in botany does not debar it in zoölogy, and if it is not otherwise preoccupied it must stand. Soon after its rejection by Baird in 1858 on the ground of botanical preoccupation, it was used by Dr. Allen, in Proc. Essex Inst., IV, 1864, p. 64, and in various other places in succeeding years. I brought it pointedly to the front in Bull. Nutt. Club, V, 1880, p. 95; and the same thing was done over again, without any reference to these earlier usages, by Dr. Stejneger, Auk, July, 1884, p. 230.—ELLIOTT COUES, *Washington, D. C.*

The Carolina Wren (*Thryothorus ludovicianus*) at Inwood-on-Hudson, New York City.—Visiting my summer home at Inwood-on-Hudson, March 28, 1896, I heard a loud and beautiful song coming from the top of a dead elm tree. The bird sang almost continually until my efforts to get a good view of him frightened him away. After sitting fifteen minutes on a rock near where the bird had appeared to alight, and waiting for the song, he broke out again, and I discovered him perching on a low tree not twenty-five feet distant.

It was a new species to me, but it seemed to me it must be the Carolina Wren, and on studying up the bird carefully, in all my books at home, I felt quite sure the identification was correct. I heard him again on April 1 and 22. May 14 we went to Inwood for the summer, but only heard the Wren sing four times, until May 22. Then I had a fine view of one near some dilapidated buildings around an unoccupied house. Four days later loud and continued singing attracted me to a heap of dry brush near these buildings, and there I found the parents and five little Carolina Wrens. The young were able to fly nicely, and they gave a musical call, much like that of the old birds, and scolded beautifully.

After that, they were seen frequently, and I heard the beautiful song at all hours of the day, up to Nov. 12, when we moved to town. Going to Inwood on Jan. 18, 1897, I heard the full song again, so it would appear that they wintered there.

The old birds were quite tame, lighting and singing in shrubbery close to the house, and twice one was seen on the piazza, examining plants in pots, and even drinking from the saucer of a flower-pot.—F. H. FOOTE, *New York City.*

The Mockingbird at Portland, Maine, in Winter.—On January 19, 1897, at noon, a Mockingbird (*Mimus polyglottos*) appeared in a gutter which runs beneath the south window of my study. The thermometer was below zero, and there was no snow, but an unclouded sun had softened the ice in the gutter so that the bird could moisten his tongue; and this he seemed to be doing when I first saw him. He was perhaps

five feet distant from my chair, and I noted at once that he looked like a wild bird, his ruffled plumage being in perfect condition, unfrayed and unstained. In a moment he caught sight of me and flew away.

A heavy snow-storm set in the next day. It was followed within the week by another. Wintry weather prevailed generally up to January 29. On that day I was told by a neighbor — Edward Woodman, Esq. — that he believed a Mockingbird had been visiting his grounds for several days. There, on January 31, I saw the bird again. He was rather shy and quite silent, and soon flew away.

I published a notice of this interesting winter visitor in the Portland 'Daily Press' of February 2, hoping, if he were an escaped cage bird, that the fact would thus be brought out. Nothing, however, was elicited. Enquiries of local bird fanciers also failed to lead to the knowledge of any lost pet bird.

I now met with the wanderer nearly every day. About three o'clock of the afternoon of February 11, the sun shining warmly in a still, crisp air, he took up a position in the top of a tall elm, before the same window from which I first saw him, and sang loudly for a few moments when he was apparently frightened away by passers-by. On February 15, I saw him for the last time, feeding on the berries of a mountain-ash. Four days later, — just one month from his first appearance, — Mrs. Charles J. Chapman, a neighbor and an entirely competent witness, reported to me that he had that morning visited her grounds in search of mountain-ash berries.

I have been able to find but one previous record of a supposed wild Mockingbird in Maine, — a very indefinite note by Mr. G. A. Boardman in the 'American Naturalist,' Vol. V, April, 1871, p. 121. It is this note, apparently, to which reference is made in 'New England Bird Life,' Vol. I, p. 62. — NATHAN CLIFFORD BROWN, *Portland, Me.*

Turdus lawrencii Coues. — In 1878, George N. Lawrence described a new Thrush from the upper Amazon, as *Turdus brunneus*,¹ evidently unaware that the same name had been previously applied by Brewer, in 1852, to the North American species now known as *Turdus fuscescens*. A year later, Dr. Coues published the third instalment of his Ornithological Bibliography, in which he inserted the title of Lawrence's paper with the following comment: "N. B. There is more than one *Turdus brunneus* of earlier authors. The present belongs to the section of the genus including *T. leucomelas*, *albiventris*, &c. If a proper *Turdus*, stet *Turdus lawrencii*, nobis, hoc loco, species renovata."² *Turdus lawrencii* seems to have been overlooked by subsequent writers, and is not mentioned even in Seebohm's Monograph of the Turridæ (Brit. Mus. Cat. Birds, V,

¹ Ibis, 4th Ser., II, Jan., 1878, p. 57, pl. i.

² Bull. U. S. Geol. & Geog. Surv. Territories, V, No. 4, Sept. 30, 1879, p. 570.

1881), or Foster's list of the Published Writings of George Newbold Lawrence (Bull. U. S. Nat. Mus., No. 40, 1892), which contains a detailed list of the species named in honor of Lawrence. Seebohm (l. c., p. 24) gave *Turdus brunneus* as a synonym of *Merula leucops*, described by Taczanowski in 1877, but the status of the name need not be considered here. Ordinarily new specific names are not looked for in bibliographies, and since *Turdus lawrencii* has remained buried for 18 years, it seems desirable to place it on record in some more conspicuous place where it will be found by those who may have occasion to take up the nomenclature of South American Thrushes. — T. S. PALMER, *Washington, D. C.*

Some New Records from Central New York. — Since April, 1894, when I recorded in 'The Auk' eight new species for 'Oneida County and its Immediate Vicinity,' I have been able to add four new records, making the total number of species and subspecies recorded from our territory 243. These four records are as follows, viz.:

Uria lomvia. — In Christmas week, 1894, the mounted letter carrier on the road between Utica and New Hartford captured one of these birds alive, finding it almost helpless in the road just outside of the city. It was kept alive for several days and after its death was mounted and preserved.

Mr. W. S. Johnson of Boonville has recorded two other specimens of this species taken the same month in the northern part of this county (Auk, Vol. XII, p. 177).

Colinus virginianus. — During 1894 Mr. William R. Maxon of Oneida wrote me that his father had seen a Quail near Oneida Lake, that he knew the bird well and had watched it for some time at only a short distance away. He also wrote me that a pair had nested on the farm of Lewis Maxon in the town of Verona about twenty years ago, that one had been seen at Vernon and one at Oneida Castle within a few years, and that a perfectly reliable gentleman informed him that a few Bob-whites were to be seen about his place every year. I then wrote to some of my sportsmen friends in that neighborhood, from one of whom I received the information that there was a small covey of these birds around the barns of a noted shooting man residing near Oneida Lake, that they were quite tame and he saw them often; but he would not shoot any of them, and intended to see to it that no one else did. So I think we may safely write this bird down in our list as rare, in the western part of the county.

Falco peregrinus anatum. — For years there has been a story that a pair of Golden Eagles nested every year on the cliffs near the head waters of the West Canada Creek, in the town of Morehouse, Hamilton County. This town is mostly in the Northern Wilderness of the State and these cliffs are miles from human habitation.

In August, 1895, I visited the neighborhood but failed to see either old or young birds, though my guide assured me that he had often seen them

there and had found bones of good sized mammals at the foot of the cliffs.

On May 15, 1896, I was in camp within a few miles of these cliffs (and intended renewing my visit), when Charles Haskell, a well known collector in the employment of Dr. W. L. Ralph, stopped over night with me on his way to try and collect this Eagle's nest. Notwithstanding that he urged me to go with him I allowed a previous arrangement for the day to prevent, and he departed with his guide at daylight on the 16th. He was back at my camp by late afternoon with a beautiful set of three eggs of the Duck Hawk. He found the nest thirty feet below the top of the cliff, which is several hundred feet high, and he was let down with a rope from above. He stated that the bird was very bold and that he had to keep her off with a short club.

Whether he collected the famous 'Eagle's nest' or not, is yet to be discovered but the Hawk is a new record for this district, and I believe the nest is a new record for the State of New York. The three beautiful eggs are before this with Dr. Ralph's other contributions in the Smithsonian at Washington.

Ammodramus savannarum passerinus. — A specimen of this bird was killed on the hills south of Oneida Village, July 2, 1895, by Messrs. Wm. R. Maxon and T. F. Wilcox.

In addition to the above new records the following are worth recording.

Ardetta exilis. — Mr. Wm. R. Maxon of Oneida informs me that a gentleman of that village killed two of these birds in August, 1892, a few miles west of that place, and also says that since then he has several times seen these birds in the same locality. We had but one previous record of this bird.

Nycticorax nycticorax nævius. — Mr. Maxon has a full plumaged male of this species which was taken in a steel trap set for muskrats, near Higginsville. Mr. Klock, an Oneida taxidermist, reports several females (or young?), from Oneida Lake.

Cathartes aura. — A specimen of this bird was winged near Maynard, in this county, in August, 1896, and is still kept alive in this city. Our second record.

Aquila chrysaëtos. — A Golden Eagle was shot, wounded and captured at Clinton early in May, 1896, and was kept in captivity for some time. Our second record. — EGBERT BAGG, *Utica, N. Y.*

Lake Michigan Bird Notes. — *Tringa canutus*. — While collecting on the branch of Lake Michigan at Millers, Indiana, August 24, 1896, I obtained a juvenile male of this species which is in the gray and white plumage. It was in company with a large flock of Sanderlings.

Tringa bairdii. — I took one specimen of this bird, and observed several others. It was surprising how difficult I found it to approach within gun shot of the beach birds; they would keep together in a large flock, and it required a long trip along shore to obtain the specimens I wished for.

Squatarola squatarola. — While returning along the beach to Millers to take the train home, I was fortunate enough to take an adult male of this rare migrant, which was in full breeding plumage. All of the above birds were taken at Millers in the afternoon of August 24, 1896.

Rissa tridactyla. — An adult male of this species was taken by Mr. Christopher Wagner, who was shooting from a boat on Lake Michigan near what is known as the Jack-knife Bridge, in Lincoln Park. The bird was purchased for the collection of the Chicago Academy of Sciences by Mr. Chas. M. Higginson.

Clangula islandica. — On December 11, 1896, I obtained two specimens of this bird on Lake Michigan, near the Daily News Sanitarium. I also shot a fine pair of *Harelda hyemalis*, which were the only ones of this species I observed that day. At the present writing, Feb. 3, there are hundreds of the latter species feeding among the ice floes off Lincoln Park.

Uria lomvia. — On December 31, 1896, I obtained a fine adult male of this species, which was shot by a Mr. McCoy, on the Iroquois River, Newton County, Indiana, about one and a half miles from the town of Foresman. — FRANK M. Woodruff, *Chicago Academy of Sciences, Chicago, Ill.*

Sundry Notes. — **Clangula americana.** AMERICAN GOLDEN-EYE. — A pair, the first seen this season, were observed in the harbor of Nantucket, Mass., Oct. 26, 1896; one was also seen Nov. 1; both early dates.

Merganser serrator. RED-BREASTED MERGANSER. — October 31 this species was here in greater numbers than usual.

Aythya marila. AMERICAN SCAUP DUCK. — I saw large numbers in Madaket harbor Nov. 1, — about one thousand (estimated) birds.

In passing through Nantucket Sound I saw, Nov. 11, about two thousand Old Squaws (*Harelda hyemalis*) in one body. I also saw a great many White-winged Scoters (*Oidemia deglandi*) in groups scattered over the sound; also a much less number of Surf Scoters (*O. perspicillata*). I did not observe any American Scoters (*O. americana*). I do not see many of the latter nowadays; they are getting to be a rather scarce bird on the Massachusetts and Rhode Island coasts.

Squatarola squatarola. BLACK-BELLIED PLOVER. — Four young birds were seen at Nantucket, Nov. 1; they were well up, flying towards the west. On Nov. 3, I saw one, also a young bird, and an American Bittern (*Botaurus lentiginosus*).

Puffinus stricklandi. SOOTY SHEARWATER. — Four were seen in company at Nantucket Sept. 3, 1896, as they passed by the south side of the island, flying towards the west.

Zenaidura macroura. MOURNING DOVE. — Two seen and shot one, the male, the stomach of which was forwarded to Mr. S. D. Judd, Washington, for identification of its contents, the result of which has been kindly sent

me by Dr. C. Hart Merriam, Chief of the Biological Survey, from whose letter I quote: "The bulk of the contents is grass seed (over two hundred seeds of one kind, *Panicum*, and a dozen of another, *Paspalum*). There was also a blackberry seed, a ragweed seed, and four quartz pebbles."

Dendroica vigorsii. PINE WARBLER. — While at the middle eastern portion of the island I saw, hopping about some bushes and fence rails, a lone Pine Warbler which I shot. It proved to be a young female in the first plumage.

Bartramia longicauda. BARTRAMIAN SANDPIPER. — A nest containing three eggs was found at Tuckernuck Island, June 22, 1896. It was located on the ground in a small bunch of grass, and was well concealed. The bird flew off the nest. I am told that the young leave the nest as soon as they are able to run.

Merganser serrator. RED-BREASTED MERGANSER. — One of my old shooting companions informed me that he saw thirteen Red-breasted Mergansers, in a flock at West Hampton, Great South Bay, Long Island, N. Y., July 29, 1891. They were in moult and could not fly. I think it probable they were birds that had been too badly wounded early in the season to migrate. — GEORGE H. MACKAY, *Nantucket, Mass.*

The most General Fault of the A. O. U. Check-List. — This is a serious matter which I have hitherto refrained from bringing up, partly on account of its hopelessness, in the present arrangement and numbering of the species, partly because it is to some extent a question of ornithological expertness regarding which opinions may reasonably differ. But now, having occasion to retrace the whole ground of North American ornithology, in the preparation of the Fifth Edition of my 'Key,' the blemish I shall point out obtrudes itself continually upon my attention; I cannot longer maintain the reticence I have hitherto preserved without seeming to condone the impropriety by tacit acquiescence; and I desire to put myself upon record in the matter, lest my silence be imputed to unrighteousness. This is the first general protest I make public on certain subjects concerning which I was often found in a more or less respectable minority of two or one, when various questions were put to vote for the official decision of the Committee over which I had for many years the honor to preside.

When we decided to embody the expression of our classificatory and nomenclatural wisdom in the concrete form of a Check-List, the question of the most eligible linear sequence of species, genera, and higher groups of course came up at the outset. All lists of our birds had before proceeded in time-honored fashion from the higher to the lower groups; and this high to low method had been invariably intended and implied, whether the Raptores or the Passeres were in fact considered highest. We proposed to reverse this order, and go from low to high — in other words, to turn such previous lists as those of Baird, Coues, or Ridgway "hind part before"; which proposition was carried into effect. I favored

and voted for it then, and heartily applaud it now; for, if not the most convenient, it is the most logical and biological procedure to pass from the 'lowest,' *i.e.*, the most generalized forms to those which are the most specialized, or 'highest'; such being apparently the 'natural' course of evolutionary processes. I also think we did the business well, on the whole; nobody doubts that our List passes from bottom to top of the avian series, about as smoothly as the families could be arranged in any single linear sequence — understanding, of course, that *no* one linear arrangement can possibly be natural, yet that *some* one such is a mechanical necessity of book-making.

Granting then, that we turned the series of orders and families hind part before in the best possible manner, or at least in a manner free from obvious objection, a very queer inconsistency crops up in our treatment of the *contents* of the numerous families. The same rule of reversal should of course have been applied to the genera and species of each family. But in point of fact such rule was not applied, in all instances at any rate. To put the case in a nutshell, we turned the list of families hind part before, but generally left the sequence of genera in each family as they had been in the previous lists I have named, which were modeled on the high to low principle. That this is a fact, anyone can satisfy himself by inspection of our Check-List; but the agitated searcher for light on this point may have to go through the whole of our work, before the full magnitude of our offence dawns upon him. I will put him on the track by citing a single case of what I mean, and he may follow up the investigation to any extent he pleases.

In the family Anatidæ, the general treatment of the subfamilies and genera had been, in those lists which went on the high to low order, to begin with the Swans or Geese, Anserinæ or Cygninæ; go on to the Anatinæ, which in fact inosculate with Anserinæ through the Shell-drake group, etc.; pass thence to the Fuliginæ; and finish with the Merginæ. We use these identical subfamilies, and, as I think, advisedly; we also have after a fashion reversed their sequence, so that my criticism is to some extent weakened in this very case. But no one doubts the specially close connection of Merginæ with Fuliginæ; assuredly these two subfamilies should come together. Instead of that we begin, correctly, with the Merginæ, as the 'lowest' members of the family; then jump directly to the Anatinæ; begin the Anatinæ with *Anas*, at the top of the list, and run the gamut of its genera from 'high to low,' in the good old-fashioned way; put *Aix* far from its obvious and undisputed position; pass on to Fuliginæ and run *down* that list of genera to the Scoters, Eiders, and Erismaturine genera; whence we jump again with admirable agility but questionable propriety to the Geese proper, Anserinæ, and so on to the Cygninæ.

I am not here raising any real taxonomic question. I assume that we are in substantial agreement of opinion as to the natural relationships of the subfamilies of Anatidæ, but contend that their sequence in our List

violates that consensus — does not express our views. In this particular case, the sequence of subfamilies should have been Merginæ. (*Erismaturæ*, as perhaps type of another subfamily *Erismaturinæ*), Fuligulinæ. Anatinæ, (*Aix? Dendrocygna?*), Anserinæ, and Cygninæ.

This I regard as the most general fault of the A. O. U. Check-List — reversal of sequence of families, coupled with non-reversal, as a rule, of the sequence of genera within the families. If my criticism be pertinent, the case is of course incurable; the fault runs through and vitiates the whole performance as a constitutional vice which can only be eradicated by tearing the List to pieces and putting it together again in better form. The sooner we do this, the better for the good name of the A. O. U. among ornithologists of mature judgment.

The numeration of our species and subspecies, which we fondly hoped would be a fixture forever, already shows signs of that mutability which is incident, alas! to all human affairs. The numbers are already mixed up by transfers, changes of *a*, *b*, *c*, etc., or defective by eliminations, or redundant by additions. Confusion has begun already and now threatens to defeat measurably the purpose of those numbers. Several species and subspecies are no longer identifiable by the numbers they bear, for their numbers have been changed. Again, our system of numbering does not permit us always to interpolate additions to the list in the places where they belong. Take the genus *Melospiza*, for instance; or *Otocorys* (I refuse to write "*Otocoris*," as the birds are not bugs). The subspecies of *Melospiza fasciata* were lettered *a*, *b*, *c*, etc., to the best of our ability, in what seemed their proper order, at the time when only a certain number of them were known, but when certain other groups of subspecies came up, we had no alternative to tacking them on in the order of their discovery, not being able to interpolate them in their obviously proper places, without throwing *a*, *b*, *c*, etc., out of alphabet. It is true that some of these so-called 'forms' of *Melospiza* are figments of the imagination — airy nothings to which we have chosen to give 'local habitation and a name'; but this fact does not do away with the objection I raise, that they have entered our List out of their obvious proper order.

It is earnestly to be hoped that both the extant editions of the Check-List may be officially cancelled and formally repudiated in the near future; both being then superseded by a third List, drawn up anew.
—ELLIOTT COUES, *Washington, D. C.*

RECENT LITERATURE.

Ridgway's 'Manual of North American Birds,' Second Edition.¹ — Mr. Ridgway's excellent 'Manual,' originally published in 1887 (see review in Auk, IV, 1887, pp. 333-336), is so well known to the readers of this journal that little more is necessary in the present connection than to call attention to the points wherein the second edition differs from the first. Since the appearance of the first edition, as we learn from the new Preface, "91 species and subspecies have been added to the North American fauna"; of these 12 were included in the analytical 'keys' of the first edition, "and it has been necessary in these cases only to change the typography of the names and prefix the catalogue number of the American Ornithologists' Union 'Check List of North American Birds.' The remainder are given in regular order in the Appendix (pages 583-614), marginal reference numbers in the body of the work at once directing attention to the supplementary matter." We have thus a new Preface (pp. iii-vi), giving explicit directions for using the 'keys,' and an Appendix of 32 pages of mostly new matter. All typographical errors thus far detected have been corrected, but otherwise than as above indicated the main body of the work remains unchanged.

The Appendix, besides adding some 80 species and subspecies not given in the preceding pages, includes a number of eliminations, and many modifications of and additions to the original text. Thus, in respect to *Ardea wuerdemanni*, we have the following (p. 586): "*A. wuerdemanni* is probably an intermediate plumage connecting *A. occidentalis* with *A. wardi*, the three forms [being] doubtless merely color-phases of one species, for which *A. occidentalis* is the older name." Under the genus *Fulmarus* Mr. Ridgway states that he believes the "subspecies of *F. glacialis* are probably reducible to two, an Atlantic and a Pacific form. . . It is possible that had we good series of specimens from all the breeding localities of the species, the above mentioned supposed forms [*minor*, *glupischa*, *columba*, etc.] could be clearly defined; but I have very serious doubts whether their validity can be demonstrated otherwise." The additions include two new genera — *Arremonops*, type *Embernagra rufivirgata* Lawr., and *Oreospiza*, type *Fringilla chlorura* Aud. — and one new subspecies, namely, *Cardinalis cardinalis floridanus* (p. 606). Audubon's *Fringilla macgillivrayi* is revived as *Ammodramus maritimus macgillivrayi* (p. 602), with habitat "Coast of Louisiana; coast of Texas (Corpus Christi) during migration." There are also several corrections of names, *Sula gossi* Ridgw. becoming (p. 584) *Sula nabouxi*

¹ A | Manual | of | North American Birds. | By | Robert Ridgway. | — | Illustrated by 464 outline drawings of the generic characters. | — | Second Edition. | Philadelphia : | P. B. Lippincott Company. | 1896. — Royal 8vo, pp. i-xiii, 1-653, pl. i-cxxiv, and frontispiece, portrait of Prof. Baird.

Milne Edwards, and *Dryobates pubescens sorexus* Batch. p. 59, becoming *D. p. homerus* (Cab.).

The 'Manual' being thus 'brought down to date' is sure of another long career of usefulness, being not only well adapted to the amateur, but an invaluable reference work to specialists as well. — J. A. A.

Goode's 'The Published Writings of Philip Lutley Sclater.'¹ — This especially welcome 'Bibliography,' compiled under the direction of the late Professor Goode, and relating so largely to American ornithology, is fittingly issued as a publication of the United States National Museum, although the author is not an American in nationality. As said by Professor Goode in the Introduction: "The scope of this series [of bibliographies] would seem appropriately limited to the work of the naturalists living and working in America, but there is one exception which no one can doubt the propriety of making—that in the case of Mr. Philip Lutley Sclater, the secretary of the Zoological Society of London, who has confined his work for the most part to American ornithology, and whose contributions to the systematic ornithology of the American Continent have far exceeded in extent those of any one working in this country. His opportunities have been almost unlimited, and his utilization of these opportunities has been wonderfully effective."

The 'Bibliography' is preceded by a 'Biographical Sketch' (pp. ix-xix) of Mr. Sclater, which concludes with testimonials of appreciation from Dr. C. Hart Merriam, Mr. J. A. Allen, and Mr. Robert Ridgway. The 'Chronological Catalogue of Separate Works,' numbering 26 titles (pp. 1-4), forms Part I. Part II consists of 'A Chronological Catalogue of Papers published in the Memoirs, Proceedings and Journals of learned Societies, and other Periodicals' (pp. 5-73), and numbers 1205 titles, the first dated 1844, the last 1894, with an appendix (pp. 133-135) containing 37 additional titles of papers published subsequent to December, 1894, raising the total number of titles to 1287. These are compactly and clearly printed, two columns to the page, with sufficient annotation to indicate the scope and character of the papers.

Part III consists of a tabular 'List of New Families and Genera described' (pp. 75-78). The names are arranged alphabetically, and following the name is the name of the type species, the place of description, and a reference to the number of the paper in the bibliography. The list includes 'emended' names, as well as the names of new genera, the latter numbering 125!

Part IV contains a 'List of New Species described' (pp. 79-104), arranged in tabular form, giving locality, location of type, place of de-

¹ The | Published Writings | of | Philip Lutley Sclater, | 1844-1896. | — | Prepared under the direction of G. Brown Goode. | — | Washington: Government Printing Office. | 1896 = Bulletin U. S. Nat. Mus. No. 49. 8vo, pp. xix, + 135, frontispiece, portrait of P. L. Sclater.

scription, and the number of the paper in which they are described, as entered in the bibliography. The new names number nearly 1000, and are arranged alphabetically by genera.

Part V gives a tabular alphabetic 'List of Species figured' (pp. 105-119), over 1000 in all, with the place where figured, etc.

A detailed index (forming Part VI) to the principal subjects in the works and papers listed in parts I and II completes this admirably planned and carefully executed bibliography of a most exceptionally extended series of works and papers.

Mr. Sclater's papers here catalogued relate by no means exclusively to American birds, for they include many papers on the birds of the Old World, and on general subjects in ornithology, and a very large number treating of mammals, and include figures of many rare species from the Gardens of the Zoölogical Society. The Bibliography will thus be of great service to mammalogists, as well as of immense utility to students of American birds. An excellent portrait of Mr. Sclater is given as a frontispiece to the volume.—J. A. A.

Newton's Dictionary of Birds: Part IV.¹—This noble work must be already well-known, by name at least, to all readers of 'The Auk,' for the three previous Parts have been duly noticed as they successively appeared. Its completion with Part IV gives occasion for congratulations. But whether these be now in order for its distinguished author alone is another matter. We congratulate him upon this successful accomplishment of long-cherished designs; upon this fruitage of well-laid plans for the promotion of the science he adorns; upon well-earned respite from arduous labors, at least for a time. Yet is every ornithologist, be he the

¹ Part I, A-Ga, pp. i-viii, map, pp. 1-304, 1893. Part II, Ga-Moa, title-leaf and pp. 305-576, 1893. Part III, Moa-Sheathbill, title-leaf and pp. 577-832, 1894. Part IV, Sheathbill-Zygodactyli, title-leaf (verso instructions to binder) and pp. 833-1088 + Half-title, Title, Dedication, Preface, Notanda et Corrigenda = pp. i-xiii + Introduction = pp. 1-124, 1896.

For previous notices, see Auk, July, 1893, p. 308; Oct. 1893, pp. 357-360; Jan. 1894, pp. 56-60; Apr. 1895, pp. 169, 170. The permanent title and collation are:

A | Dictionary of Birds | by | Alfred Newton | assisted by | Hans Gadow | with contributions from | Richard Lydekker | Charles S. Roy | . . . and | . . . London | Adam and Charles Black | 1893-1896 | 1 vol. 8vo. pp. i-xiii (Half-title, Title, Dedication, Preface, Notanda et corrigenda), pp. 1-124 (Introduction and Index thereto), pp. i-viii (Title to Part I, Note, etc.), 1-304 (Alphabet), Title to Part II and pp. 305-576 (Alphabet, with map opp. p. 311), Title to Part III and pp. 577-832. (Alphabet), Title to Part IV and pp. 833-1058 (Alphabet), pp. 1059-1088 (Index); unnumbered figg. in text. Printed by R. & R. Clark, limited, Edinburgh. Orig. Note to Part I dated March, 1893. Preface dated Nov. 1896. Publication completed Nov. or Dec. 1896.

timid tyro or the confident master of his craft, to be congratulated, not the less but rather the more heartily than the author upon the possession of such a hitherto unexampled work as Professor Newton's 'Dictionary': for it is far and away the best book ever written about birds.

Lest this judgment be imputed to the personal prejudice of an almost life-long friend of the author, and regarded as panegyric rather than sober statement, it behoves us to define what we mean by that classic superlative—"the best." In weighing the merits of any considerable performance, the principle of the greatest good to the greatest number comes up first. A work may be of the greatest excellence in a particular way, or for a special purpose: in which case the good it can possibly do is restricted accordingly—like that mathematical treatise which was said to be so learned that only its author and one other person could have understood it, had the latter not been ignorant of the language in which it was composed. This is an instance of the greatest good to the fewest possible number; it is the opposite extreme of a Newton's 'Dictionary'—a work by which no one who can read English can fail to profit, so be it he have intelligence enough to know what he wants, or what, at any rate, he ought to want to know. It is upon some considerable acquaintance with the literature of ornithology, acquired in the course of forty years, that we declare the present to be the best 'all-round' book we have ever seen: the one that best answers the purposes of the most readers: the one which conveys the most information per thousand *ems.*: the one which is freest from misstatements of any sort: the one which is most cautious and conservative in expression of opinions where opinions may reasonably differ: the one which is the most keenly critical, yet most eminently just in rendering adverse decisions: the one which is composed in the plainest and purest English, if we except some of the maturest writings of Huxley—"that so great a master of the art of exposition": the one which is the most erudite and the least pedantic: the one of the most distinctively academic flavor, yet most kindly regardful of the limitations of a *profanum vulgus*. It is a wise, a courteous, a dignified book: such a fruit of ripe scholarship as almost justifies the Fabian policy Professor Newton is well known to have seldom failed to pursue in cultivating the acquaintance of his printers. One of the ends, among many, which crown this work is the justification of making haste slowly; and another is the perpetual injunction which this 'Dictionary' serves upon a generation of ornithological scientists and sciolists, among neither of which classes of writers is cocksureness a quality to be sought in vain. It is far too masterly a work to be acceptable in all quarters, for various reasons; some of which reasons being, that it accentuates the difference between workmanship and amateurishness; administers a wholesome "corrective to the erroneous impressions commonly conveyed by sciolists posing as instructors"; sets up a standard of excellence which many writers may shrewdly despair of approaching; and thus burns bridges over the great gulf fixed by natural selection between the fit and the unfit to handle the pen.

Among various merits which a literary performance may possess that of sheer utility is surely not to be despised. The present reviewer, for example, is far enough along in the business of writing about birds to have entertained grave doubts concerning his own omniscience or infallibility, and to be very much obliged indeed for information that he lacks. During the past few years he has made much ornithological manuscript, the outcome of which at present concerns nobody but himself. During a like period, one or more Parts of this 'Dictionary' has lain or have lain upon his desk, instead of standing upon his shelves; and he has acquired the habit of saying to himself, upon taking up the pen of a morning, before shedding ink upon any topic of the day, "I wonder what Prof. Newton has to say about that?" Ten to one, he has found something he wanted, if it were only a reliable date, or a right spelling, or a name he never knew before, or an exact definition, or a sound etymology, or bit of early history — or whatnot in the way of positive, reliable information. Ten to one, again, in looking for something he wanted, he found something else he should have wanted had he fully realized his own obtuseness; and one thing led to another, till he had been reading the 'Dictionary' all the morning instead of minding his own business. He therefore warns all users of the 'Dictionary' that his case is not likely to be singular! But he feels also quite certain that some considerable time of every intending writer upon birds can in nowise be more pleasantly or more profitably spent than in informing himself of what Professor Newton has already set down concerning them; and if it be happily true that "the written word remaineth" in the mind of the would-be writer, there can be no reasonable doubt that his own performance will be improved accordingly. This is a test of usefulness to which only a thoroughly good book can be put without detriment to its reputation; yet this 'Dictionary's' credit will increase with every such trial to which it may be subjected.

The 'shortcomings' of the 'Dictionary' are innumerable, being no fewer than the number of all the names which exist in ornithology, but which are not entered alphabetically in this work. They are the lengths to which the author did not see fit to go, and as such are best dismissed in his own words (Preface, pp. vii, viii):

"It has been my object throughout to compress into the smallest compass the information intended to be conveyed. It would have been easier to double the bulk of the work, but the limits of a single volume are already strained, and to extend it to a second would in several ways destroy such usefulness as it may possess. . . . It will be obvious to nearly every one that the number of names of Birds included in a work of this kind might be increased almost indefinitely. Whether it will ever be possible for me to supply these additions, and others, must depend on many things, and not least on the reception accorded by the public to the present volume."

As touching this contingency, with its implicit promise, we may express our gratification at seeing the 'Dictionary' advertised for sale in

this country by the Macmillan Company of New York: and repeat our already expressed opinion that it is the best book ever written about birds. No ornithologist, no person who desires or intends to become one, can afford to be without it. We wish that we could record our conviction that its reception by the public will be according to its merits: but that seems improbable, for mediocrity has no means of measuring pre-excellence.

Recognizing fully, as we do, the inexorable limits of a single volume, we have no disposition to find fault with anything that this 'Dictionary' does not contain; and even if the principles upon which Professor Newton has made up his alphabet are not always clear to us, we are quite ready to believe them judicious, or best for the end he had in view. We are thankful for all that is implied by the admission of our Koel or our Paauw, though we may have to look elsewhere for the difference, if any there be, between a Thrush-Titmouse and a Titmouse-Thrush. It is enough to add that we are not here concerned with a Giebel, but with a Newton; and long-protracted lexicographic work of our own has satisfied us that the author need not have recorded any reason for moulding the main body of his treatise dictionary-wise — not even so good a reason as the following (prefatory Note, p. vii):

"I would say that the alphabetical order has been deliberately adopted in preference to the taxonomic because I entertain grave doubt of the validity of any systematic arrangement as yet put forth, some of the later attempts being in my opinion among the most fallacious, and a good deal worse than those they are intended to supersede."

Considering the attention already bestowed upon Parts I-III of the 'Dictionary' by a competent critic ("J. A. A."), whose final office we here usurp at his own instance, and agreeing cordially with the tenor of his reviews, we may confine ourselves to the remarks which follow to consideration of Part IV, which carries the alphabet from *Sheathbill* to *Zygodactyli* — why not to *Zygoma* being explicable as above. It would be unnecessary, even were it reasonably practicable within the limits of a review, to scrutinize the list of entries in detail; especially as there is much we wish to say regarding the 'Introduction'. Suffice it to observe no falling off, whether in fullness, accuracy, or elegance of treatment, from the high standard of excellence set in the beginning, but rather the reverse; for, as is usual in similar cases — we cannot say, in such cases, because this one stands alone — the work *crescit eundo*, and many of its most notable articles fall in the latter part of the alphabet. Opening Part IV at random, we happen upon *Toucan*, p. 976, followed by *Touraco*, pp. 979-982, both being among the longer articles. These two words have histories which go back in the one case to 1668 at least, in the other beyond 1743; the birds themselves have been known still longer under other names; and each belongs to a notable family. Their treatment is a fair sample of Professor Newton's conspicuous ability in so handling subjects, both historically and ornithologically, as to convey the most

information, of the sort desired by most persons, in the smallest compass. Next comes *Towhee*, a minor article, on a part of one page, with an explanation of the word, identification of the bird, a figure of its head from Swainson, remarks on the species of *Pipilo*, references with the usual small capitals to FINCH, BUNTING and CATBIRD (which the cry of some species calls up), and the synonyms of Chewink and Ground-Robin (though we miss 'Joree,' a less known nickname of *P. erythrophthalmus*). Next comes *Trachea*, a 2½-page article by Dr. Gadow defining that organ, and noting its main modifications in many different groups of birds, with cross-references to *Larynx* and *Syrinx*. Next happens to come *Tracheophones*; we give it as a model of curt, formal definition, in a case where the author has nothing further to say:

"TRACHEOPHONES (by some written *Tracheophonæ* or *Tracheophoni*) Johannes Müller's name (*Abhandl. k. Akad. Berlin, Phys. Kl.* 1847, p. 367) for the second of his three groups of PASSERINI, having the trachea furnished with one or two pairs of vocal muscles, and those lateral (*cf.* SYRINX, p. 940)."

These examples must suffice. To go through any considerable portion of this 'Dictionary', applauding the author's strong and clear statements of fact, would be futile, after what has been said; and to pick up for discussion or criticism his expressions of opinion (which he sedulously distinguishes from statements of fact) in cases where they may differ from our own, or be open to revision, would be fatuous; for that would be to write another, and presumably a much inferior, treatise upon the same subjects. Nor have we any intention, in reviewing a work the equal of which for accuracy we have not seen before in any instance of similar magnitude, of pricking pin-holes; that may be left to literary chiffonniers whose tastes differ from our own, and who have possibly time to waste. We finish this very inadequate sampling of the alphabetical entries by calling attention to the Index with which the work concludes — a valuable feature, which theoretically should be superfluous in a 'Dictionary,' but which in this case goes far toward obviating an inconvenience of which some may justly complain — that resulting from comparative fewness of the entry-words. Thus, for examples: *Tubinares* is entered, with a 4-line definition, including cross-references to *Albatross* and *Petrel*; but the Index gives under *Tubinares* 32 places where something may be found about the birds which come under that head. *Upupa* is not entered, as Latin generic names, when not English also, are not within the scope of the work for formal entry; but under *Upupa* in the Index are 24 references to pages where birds of that genus are treated in the text.

The most important article in the whole work is the Introduction, now supplied with Part IV, of course to be bound in its proper place, as above indicated. This, with the Index to itself, runs pp. 1-124 (slanting Arabic figures, as if italics, to distinguish this matter from pp. 1-1088 of main text). It is difficult to characterize this piece of work justly without

using words which may seem to be extravagantly laudatory. Perhaps we may say simply, by way of conveying our appreciation of its real merit, that only one ornithologist who has ever lived, or who is now living, could have written it. In purport and scope, it is a critical review of ornithology, from the start to such degree of finish as the science has acquired today; in substance, it is a summary bibliography of those works upon which the foundations of the science rest most securely, and of those which have most contributed to its permanent superstructure — 'each after its kind' being set forth in chronological order, in proper historical perspective, with due regard for symmetrical proportion; in form, by which we mean its literary style, it is a model to be admired by all but successfully imitated by none. Professor Newton's ripe scholarship has perhaps never been more adequately shown than on this occasion, when only a master of the art of exposition, who combined in himself the qualities of a great ornithologist and a great bibliographer, could have brought his forces to bear upon the business in hand with the requisite lucidity and precision. The literature of ornithology is so huge — indeed, Professor Newton speaks of the science as in danger of being smothered thereunder — that one might well be dismayed in face of any undertaking to set it forth intelligibly, with hardly more than a hundred pages at command in which to accentuate its strong points and stigmatize its weak or futile ones, with even-handed justice throughout — so almost incessant, in this case, must have been the temptation to mercy. For performances whose chief or only merit may be found in those good intentions with which a certain mythical locality is said to be paved, Professor Newton's good-nature is unfailing, as his patience is unwearied. But for the sciolists and shams of whatever low degree, for the posers and plagiarists of whatever high pretensions, for any writers whose good faith may be questioned or whose good opinion of themselves is vanity — *væ victis!* The schoolmaster is abroad, and his ferule is felt to be a stinging one. For pith and pungency Professor Newton's criticisms compare not unfavorably with Huxley's. They are equally pointed and polished; they are passed with equal courtesy and dignity; they are generally tempered with some saving clause, whether to be passed to the credit of the critic's charity or of his ingenuity we cannot always say; but he seldom presents the chastening rod in one hand without holding out a box of ointment in the other. It reminds us of Kamadeva, the Hindu Eros — him of the bee-strung bow, whose keenest shafts were tipped with roses.

In so phrasing his parable the present reviewer feels sure he voices no sentiments unshared by others of his own craft. Referring to the article 'Ornithology' in the Ninth Edition of the 'Encyclopædia Britannica' — it is well known that the present 'Dictionary' is founded upon the series of articles contributed by Professor Newton to that publication, modified into something like continuity, and further built up by the intercalation of a much greater number, to serve the same end — a distinguished leader

of our science lately opened an address he delivered to the Congress at Budapest in the following words, in part :

"From the time of our great master, Linnæus, and even from that of the patriarchs of Science, Professor Newton traces the gradual development of Ornithology; and not only do I find little to add to this masterly treatise, but my very criticisms are there forestalled, and I offer this tribute to the genius of my talented countryman, not without a slight feeling of envy at the vigorous English in which the memoir is composed, and the truly wonderful way in which his facts are marshalled and arranged. With some regret, therefore, I have laid aside my exposition of the various schemes of Classification which I had intended to place before you, because I feel that I could not say anything which Professor Newton has not said ten times better; and although his article may not be 'milk for babes,' by the earnest devotee of Ornithology it will be read with intense interest."

To whatever school, 'old' or 'new,' Dr. Sharpe may be held to belong, this shows that our eminent colleague also knows the good wine which needs no bush; and we should not protract the present review were all as well qualified to pass judgment as he is, or were Professor Newton's 'Dictionary' as well known to the rank and file of American ornithologists as we trust it may speedily become — albeit the luxury of praising that which may be justly praised without stint is ours in the present instance, and one which we propose to enjoy yet further, before we put a period to its expression. We wish to show, if possible, how Professor Newton has accomplished the apparently impossible feat of profitably reviewing ornithology as a whole in 120 octavo pages. He first notices pretty thoroughly the chief ornithological works begun if not completed before the beginning of the present century — not an extremely difficult task, though it consumes one-sixth of his allowable space (pp. 1-21). With the present century began — or began to multiply — three different classes of works, namely: Faunæ, Monographs, and publications of scientific societies. With the last of these he cannot undertake to deal, "except they be of prime importance." The monographs come next for treatment, including great works on special groups of birds, generally illustrated with plates to which the text is more or less a secondary consideration. These are disposed of on pp. 21-28. Attention is then turned to general and particularly to systematic works in which plates, if they exist at all, form but an accessory to the text — works such as those of Illiger, Vieillot, Temminck, and so on to Gray and Giebel. In this connection Professor Newton does not hesitate to kill the circle-squarers — Macleay, Vigors, and Swainson — over again; he handles them as one might unruly children caught making mischief, and we cannot refrain from giving a quotation (pp. 34, 35):

"True it is that there were not wanting . . . men in these [British] islands whose common sense refused to accept the metaphorical doctrine and mystical jargon of the Quinarians, but so strenuously and persist-

ently had the latter asserted their infallibility, and so vigorously had they assailed any who ventured to doubt it, that most peaceable ornithologists found it best to bend to the furious blast, and in some sort to acquiesce at least in the phraseology of the self-styled interpreters of Creative Will."

That is an example of the chastening rod to which allusion has been made. With it comes the unfailing box of ointment we also mentioned:

"But, while thus lamenting this unfortunate perversion into a mistaken channel of ornithological energy, we must not over-blame those who caused it. Macleay indeed never pretended to a high position in this branch of science, his tastes lying in the direction of Entomology; but few of their countrymen knew more of Birds than did Swainson and Vigors; and, while the latter, as editor for many years of the *Zoological Journal*, and the first Secretary of the Zoological Society, has especial claims to the regard of all zoologists, so the former's indefatigable pursuit of Natural History, and conscientious labour in its behalf — among other ways by means of his graceful pencil — deserve to be remembered as a set-off against the injury he unwittingly caused."

A rapid survey of Faunal works is next taken, carrying the subject to p. 45. This is necessarily limited "to those countries alone which form the homes of English people, or are commonly visited by them in ordinary travel." In this retrospect American Faunists will find themselves at full proportionate length.

But the main burden of the Introduction, carried almost to its end, is the review of modern systematic Ornithology, "to trace the rise of the present more advanced school of ornithologists whose labours, preliminary as we must still regard them to be, yet give signs of far greater promise" (p. 45). A difficult task is here self-imposed at the start; it is one of peculiar delicacy toward the finish, when living contemporaries, often but not always friends, sometimes pupils, must be brought to book to answer for their performances. Professor Newton's idea is, to set forth those works and those persons he considers to have rendered the most solid service in constructing an enduring morphological *Systema Avium* upon the principle of genetic relationships, in accordance with accepted theories or proven facts of evolution. We can possibly indicate by a bare list of names the course which Prof. Newton's treatment of this theme takes. The leading names are: Nitzsch — Étienne Geoffroy St.-Hilaire — Tiedemann — Nitzsch — Merrem — De Blainville — Nitzsch — Nitzsch apud Naumann — L'Herminier — Nitzsch — Berthold — Cuvier — Gloger — Sundevall — L'Herminier — Macgillivray — Owen — Blyth — J. F. Brandt — Keyserling and Blasius — Nitzsch ed. Burmeister — Kessler — Macgillivray apud Audubon — J. Müller — Cornay — Cabanis — Bonaparte — Hogg — E. Newman — Gervais — Blanchard — Eyton — A. B. Meyer — Des Murs — Darwin and Wallace — Parker — A. Wagner — Lilljeborg — Huxley — A. Milne-Edwards — Marsh — Sundevall — Reichenow — Garrod and Forbes — Murie — Wallace — Sclater — Stejneger — Fürbringer —

Gadow — but here we must put a period, at p. 108 of the Introduction. Most of these names will convey their own moral to every well-informed ornithologist, as readily as Merrem calls to mind *Ratitæ* and *Carinata*, or Nitzsch brings up pterylography. But not all of them stand in the pantheon — Berthold, for example, is dismissed with a sigh of relief, and some others with even less emotion. In general, the space devoted to each indicates fairly their weight in the scales of Professor Newton's judgment, for he is not here setting up small authors to be cast down, but great ones to be attentively regarded in the light of their respective contributions to the edifice of the future; and he must be indeed an exceptionally well-informed ornithologist who has not much to learn of the exact quantity and quality of these contributions from this masterly exposition. We have spoken of its great difficulty and extreme delicacy in some cases; we testify to its equal discernment and perfect fairness; and offer two cases in evidence.

Huxley is treated in five pages (pp. 82-86), chiefly devoted to his paper of 1867, with this conclusion, as we think agreeable with a consensus of expert opinion:

" . . . That the palatal structure must be taken into consideration by taxonomers as affording hints of some utility there could no longer be a doubt; but the present writer is inclined to think that the characters drawn thence owe more of their worth to the extraordinary perspicuity with which they were presented by Huxley than to their own intrinsic value, and that if the same power had been employed to elucidate in the same way other parts of the skeleton — say the bones of the sternal apparatus or even of the pelvic girdle — either set could have been made to appear quite as instructive and perhaps more so. Adventitious value would therefore seem to have been acquired by the bones of the palate through the fact that so great a master of the art of exposition selected them as fitting examples upon which to exercise his skill."

Sundevall's case is perhaps the most remarkable among those Professor Newton is called upon to weigh. *Mutatis mutandis*, it presents to our eye some likeness to that of Macgillivray. The latter was an excellent ornithotomist to whom Professor Newton gives well-deserved praise for his observations, but who utterly failed to interpret his anatomical facts to any useful taxonomic purpose, his classification being nugatory. Sundevall was a man of vast and varied acquirements, the opposite of Macgillivray in that he was a 'skin man' *sans peur*, whose final achievement in classification was no better than Macgillivray's, if as good. But let us hear Professor Newton on this score (p. 90):

"The only use of dwelling upon these imperfections [to wit, of Sundevall's *Tentamen*] here is the hope that thereby students of Ornithology may be induced to abandon the belief in the efficacy of external characters as a sole means of classification, and, seeing how unmanageable they become unless checked by internal characters, be persuaded of the futility of any attempt to form an arrangement without that solid foundation which can

only be obtained by a knowledge of anatomy. Where Sandevall failed no one else is likely to succeed: for he was a man gifted with intelligence of a rare order, a man of cultivation and learning, one who had devoted his whole life to science, who had travelled much, studied much and reflected much, a man whose acquaintance with the literature of his subject probably exceeded that of any of his contemporaries, and a man whose linguistic attainments rendered him the envy of his many friends. Yet what should have been the crowning work of his long life is one that all who respected him, and that comprehends all who knew him, must regret, though apart from his systematic treatment his handiwork is admirable."

Most of Professor Newton's criticism in this part of his work is constructive—that is to say, it is concerned with the building up of the good, not the pulling down of what he considers bad: for bad work or bad workers hardly appear here, unless it be to be brushed aside in a word. Yet it is perhaps but fair to place in juxtaposition with the above an example of unmitigated severity (p. 44):

"By every well-informed ornithologist the *History of British Birds* of Mr. Morris has long been known to possess no authority: but about Mr. Seebohm's volumes with the same title there is much difference of opinion, some holding them in high esteem. The greater part of their text, when it is correct, will be found on examination to be a paraphrase of what others had already written, for even the information given on the author's personal experience, which was doubtless considerable, extends little or no further. But all this is kept studiously out of sight, and the whole is so skilfully dressed as to make the stalest observations seem novel—a merit, I am assured, in some eyes. Of downright errors and wild conjectures there are enough, and they are confidently asserted with the misuse of language and absence of reasoning power that mark all the author's writings, though the air of scientific treatment assumed throughout has deluded many an unwary reader."

There is of course no balm in Gilead for a wound like that; though in another place (p. 734 of Alphabet, note), where Professor Newton castigates poor Seebohm with less acerbity for his fantastic sciolism in the taxonomy of *Limicola* the saving clause comes: "Yet the many beautiful figures given by Mr. Seebohm will always make his work acceptable to ornithologists of all schools, despite his numerous vagaries."

It were needless to add, after what has preceded, that Professor Newton is fully committed to morphological taxonomy on evolutionary principles. We should hardly think any different view could be taken by a competent scientist of the present day. The assumed distinction between external and internal characters is absurd: they are parts of one structural integer, and if the insides of a bird prove more valuable for classificatory purposes than its outside, it is simply because there are more of the former than there is of the latter available for examination and interpretation. Most of the authors above listed will immediately be seen to have been anatomists; and we note with pleasure Professor

Newton's insistence upon the importance of taking a bird's whole structure in consideration in the attempt to fix its position in a natural genetic classification. Such insistence is well exemplified in the care Professor Newton takes to place in their proper light Professor Fürbringer's recent remarkable contributions to systematic ornithology (pp. 100-103), together with those of Dr. Gadow—neither of whom is so well known, in this country, as each deserves to be.

The remainder of the Introduction is devoted to what may be deemed the present outlook for the taxonomy of the future. Those who did not know Professor Newton's extreme caution and conservatism might perhaps expect to find him propounding a system of his own; but such will look in vain. We have carefully guarded statements on many points which seem to have been established; but beyond these Professor Newton is unprepared to go. Audacity and even temerity have their uses, on some occasions, but the construction of an Avian phylum is not among the opportunities for a profitable display of such qualities—tempting and alluring though the prospect may seem to some ardent minds. The geological record remains to this day altogether too incomplete. No one has yet flown to the Jura except on the wings of the imagination; and until a safer mode of progression in that direction be opened, with a plentiful supply of the still missing links for stepping-stones, the natural classification of birds will remain a vision of Utopia.

We should not close this tribute to the great work of a great ornithologist without recognition of those by whom he has been so ably aided in its execution—in ornithotomy by Dr. Gadow, whose contributions are conspicuous throughout the volume; in palæornithology by Mr. Lydekker; in other lines by Professor Roy; certain other contributions we do not see fit to name being fortunately too few and too insignificant to appreciably detract from the standard of excellence elsewhere maintained throughout the 'Dictionary.'—E. C.

Bates's '*The Game Birds of North America*.'¹—Mr. Bates's definition of a game bird is the following: "A game bird is one which is suitable for food and which is habitually pursued for sport, demanding skill and dexterity for its capture. I take it for granted that every sportsman is a gentleman, and would not slaughter more game than he could find a use for, and that he would not descend to the level of the pot-hunter, who will kill Robins and other insectivorous birds simply because they are fit to eat." The book is intended as "a convenient reference list adapted to the sportsman's needs without compelling him to wander among a mass of useless matter." Judged by this standard the author has apparently prepared a handy book for the intelligent sportsman, whereby he may in most

¹ *The Game Birds of North America | A Descriptive Check-List | By | Frank A. Bates | President "Boston Scientific Society," and formerly | Associate Editor "Ornithologist and Oologist." | Illustrated | Boston | Bradlee Whidden | 1896—16mo, pp. 118.*

cases, doubtless, easily learn the names of the game birds that fall before his gun. The few outline figures of bills and feet given in the text must be of service in aiding in the determination. In most cases about a page is devoted to each species, consisting of a more or less detailed description, followed by remarks on distribution, habits, and quality of the flesh as food. In all 124 species and subspecies are formally treated, beginning with the Loons and ending with the Passenger Pigeon. The few technical inaccuracies here and there need not necessarily detract from the value of the book for the class for which it is intended. — J. A. A.

Butler on a Century of Changes in the Aspects of Nature in Indiana.¹ — As the title indicates, this paper is not exclusively ornithological, but contains, among much matter of general interest, several passages that depict the changes in the bird fauna of Indiana due to the occupation of the country by the white man, — the marked decrease or practical extirpation of some species, and the increase and changes in habits of others. Among the species "almost, or in great measure, exterminated" are the Wild Turkey, Bobwhite, Ivory-billed Woodpecker, Black Vulture, Carolina Paroquet, and Passenger Pigeon. Of the latter Mr. Butler writes, after detailing the methods of slaughter: "Less and less the numbers grew. Trapping and netting, supplemented by repeating guns, added to the power of destruction, and the Pigeons, whose numbers were once so great that no one could conceive the thought of their extinction, have dwindled until they are rarely found. One Pigeon in a year! Soon they will be but a memory" The destruction of birds to supply the demands of fashion also receives attention as one of the causes that have led to their decrease. — J. A. A.

Elliot's Catalogue of a Collection of Birds from Somali-Land.² — While the main object of Mr. Elliot's expedition into Somali-Land, under the auspices of the Field Columbian Museum, was to procure specimens of the mammals inhabiting that country, quite a collection of birds was also incidentally obtained, a report on which Mr. Elliot has thus promptly published. He states that he was never in a country "where birds were more numerous and tame, and an expedition properly equipped for bird collecting, could procure a very large series of specimens in a very short time." The collection formed by Mr. Elliot's party numbers 125 species, of which 8 are described as new. The annotations include interesting field notes on the habits and relative abundance of many of the species, together with some technical and other notes. — J. A. A.

¹ Indiana: A Century of Changes in the Aspects of Nature. By A. W. Butler. Proc. Indiana Acad. Sci., No. V, 1895, pp. 31-42.

² Catalogue of a Collection of Birds obtained by the [Field Columbian Museum] Expedition into Somali-Land. By D. G. Elliot, F. R. S. E. Field Columbian Museum Publication 17. Ornith. Series, Vol. I, No. 2, pp. 29-67. Chicago, Feb., 1897.

Anderson's Birds of Winnebago and Hancock Counties, Iowa.¹ — This is a carefully annotated list of 218 species, based on six years' observations by the author, mainly in the immediate vicinity of Forrest City, Iowa, about seventeen miles south of the Minnesota boundary, and on the meridian of Des Moines. Two pages of introduction describe the topography of the region. The author states that "no species is enumerated of which the identification is doubtful," most of the species having been personally observed or collected by him. Credit is given to other observers for notes on several species which have escaped his notice. In a list so generally free from typographical errors, it seems strange to see *Dendroica* spelled *Dentroica* in each of the nine cases when it is used. — J. A. A.

Ricker's Notes on the Birds of Hull, Mass.² — The *raison d'être* of this annotated list of some 76 species is not very evident, based, as it admittedly is, on rather limited observations. Hull is of course a very restricted locality, and not especially favorable for birds, which may to some extent account for the very small number of species here recorded. The list contains nothing noteworthy on account of rarity or otherwise, while many of the species are not very positively identified. — J. A. A.

Howe's Birds of Brookline, Mass.³ — One hundred and thirty-six species have been noted during the last six years within the town limits of Brookline, Mass. The list is briefly annotated, from the notes of Mr. Howe and five other well known observers. The haunts of a number of species have been recently destroyed, and the birds forced to seek other resorts; yet 72 species are recorded as regularly breeding within the town limits, and 47 occur as regular migrants. — J. A. A.

Tegetmeier's 'Pheasants.'⁴ — This authoritative manual, now in its third edition, has long been recognized as a standard work on the hatch-

¹ An Annotated List of the | Birds | of | Winnebago and Hancock Counties, Iowa. | — Being a List of Birds Observed in the Counties of | Winnebago and Hancock, State of Iowa, with Brief | Notes on the Same. | — | Forest City, Iowa. | Printed by the Author. | 1897. — 16mo, title page, pp. i, ii, 1-19.

² Notes on the | Birds of Hull | Massachusetts, | by Everett W. Ricker. | Illustrated. | Newtonville. | C. J. Maynard. | 1896. — 16mo, pp. 36, with 3 col. pll., and several figs. in text, some colored.

³ Birds of Brookline, Mass. A list prepared by Reginald Heber Howe, Jr. Fol., pp. 2, Jan., 1897.

⁴ Pheasants | their | Natural History and Practical Management. | By | W. B. Tegetmeier | (Member of the British Ornithologists' Union), | Author of "The Natural History of the Cranes," "Table and | Market Poultry," Etc., Etc. | [Design.] Third Edition, Enlarged. | Illustrated from Life by Messrs. J. G. Millais, T. W. Wood, | P. Smit, and F. W. Frohawk. Etc. | London : | Horace Cox, | "The Field" Office, Bream's Buildings, E. C. | — | 1897. | (All rights reserved.) — 8vo, pp. xii, 237, pll. 16.

ing, rearing, and treatment of Pheasants in captivity. A dozen species and several interesting hybrids are beautifully illustrated in the 16 fine plates that accompany the text, one of which shows the Argus Pheasant displaying its plumage. The principal subjects treated are the 'Natural History of Pheasants,' 'Management in Preserves,' 'Management in Confinement,' 'Diseases of Pheasants,' 'Pheasants adapted to the Covert,' and 'Pheasants adapted to the Aviary.' No species of Pheasant seems susceptible to domestication, like the common fowl; even when bred in aviaries for generations they retain their original wildness, and when set at liberty "betake themselves to the woods and coverts as soon as able to shift for themselves." Mr. Tegetmeier refers to the successful introduction of the Ring-necked and Golden Pheasants into Oregon, where they have become thoroughly acclimatized; but he seems to take a too sanguine view of the case of the English Pheasant, introduced in the Eastern States, or to have been misinformed, when he states it "is generally regarded as the future game bird of the country," etc. (p. 38)—J. A. A.

Bird-nesting with a Camera.¹—The second part² of Mr. Lee's admirable work is fully up to the standard of excellence set by Part I,—higher praise cannot be accorded it.

The nests of the following species are herein figured and described:

(1) Coot (*Fulica atra*), two plates; (2) Shoveler (*Spatula clypeata*); (3) Kittiwake Gull (*Rissa tridactyla*); (4) Waterhen (*Gallinula chloropus*), two plates; (5) Willow Wren (*Phylloscopus trochilus*); (6) Sandwich Tern (*Sterna cantiaea*), and (7) Sheld-Duck (*Tadorna cornuta*), two plates.—F. M. C.

A List of the Birds of Florida.³—This is a nominal list of the birds of Florida, enumerating 352 species and subspecies, and will doubtless prove a convenient Check-List to students of Florida birds. The following species have apparently been overlooked: *Buteo borealis harlani* (see Bendire, Life Histories of N. A. Birds, Part I, p. 218); *Spiza americana* (see Beckham, Bull. N. O. C., VII, 1882, p. 250); *Dendroica dominica albilora* (see Scott, Auk, XII, 1890, p. 20); *Sylvania canadensis* (see Allen, Bull. Mus. Comp. Zool. II, 1891, p. 269); *Seiurus noveboracensis notabilis* (see Brewster and Chapman, Auk, VIII, 1891, p. 135).—F. M. C.

¹ Among British Birds in their Nesting Haunts. Illustrated by the Camera. By Oswin A. J. Lee. Part II. Edinburgh. David Douglas. Folio, pp. 41-77, pll. x.

² For a notice of Part I, see this journal, Vol. XIV, 1897, p. 106.

³ A List of the Birds of Florida. By Charles B. Cory. For sale by Bradley Whidden. 18 Arch St. Boston. 1896—8vo, pp. 24.

Cory's List of the Birds of Eastern North America.¹—This "list includes all birds which are known to occur in North America east of the ninetieth meridian." It is very slightly annotated with reference "to species which occur in New England, Illinois, and Florida. Taking these States to form the points of an imaginary triangle, a somewhat crude idea of the range of species which occur within this area may be obtained," etc. The annotations generally consist of the use of the abbreviations "N. E.", "Fla.", and "Ill.", one or all, as the case may require except in the case of species of casual or accidental occurrence, when the nature of their presence is indicated. The 'List' includes 570 species and subspecies, the nomenclature and arrangement being that of the A. O. U. Check-List; the species are numbered consecutively, the equivalent numbers of the A. O. U. Check-List being added in parenthesis. Of the 570 species listed, 104, or about 18 per cent, are of casual or accidental occurrence. Among the Water Birds (Grebes to Grouse), the casu- als are largely (more than one half) stragglers from the Old World; the rest are about equally from the West and from the West Indies and other parts of the tropics. It may be noted that No. 431, *Junco hyemalis oregonus*, is doubtless the same as No. 432, *Junco h. shufeldti* (= *connectens*).—J. A. A.

Schalow's the Published Writings of Anton Reichenow.²—This is a convenient list of the published writings of this eminent ornithologist, arranged chronologically, and numbering 288 titles. The list of titles is followed by a list of the new generic names, proposed by Dr. Reichenow, which number 38, of which 15 are proposed to replace earlier 'barbarous' or improperly constructed names. Then follows a list of the species described as new, numbering 342, and finally a list of the species named in honor of Dr. Reichenow, 17 in number. Dr. Reichenow's papers relate mainly to African birds, but include many of a more general character, and several special works of much importance.—J. A. A.

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¹ A | List of the Birds | of | Eastern North America | By Charles B. Cory | For sale by | Bradley Whidden | 18 Arch St., Boston | Boston | 1896—8vo, pp. 42.

² Anton Reichenow. Ein Verzeichniss seiner bisherigen Arbeiten. 1869-1896. 8vo, pp. 29. Dec. 1896.

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CORRESPONDENCE.

Captive Wild Birds.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs:—I have read with great pleasure in your January issue, Mr. Owen's interesting paper on a captive Hermit Thrush, but there is one point in connection with his treatment of the bird—his liberating him—on which I should like to say a few words, particularly as it is almost universally supposed that to give a caged bird freedom, is a kind thing to do, and the happiest for the bird. He had taken the young Hermit before his training for a free life was finished, and accustomed him to having his wants supplied and his safety assured, without effort of his own. Then, when the season was nearly over, he thrust the young creature out into the world to forage for himself. The bird had not learned to seek his own food, nor, probably, to care for his own safety, and his natural ties were completely severed, so that he had no instructor. This is frequently done, and of course from the kindest motives, but it has always seemed to me a great mistake, and a cruelty to the young bird, to deprive him at one stroke of home, protection, shelter and food.

According to my experience, when birds are thoroughly well treated, not too closely confined to cages, and made happy under human care, they learn to appreciate it, and many of them prefer to remain where life is made easy for them. This is often the case, even with old birds who know the pleasures as well as the pains of freedom. When let out, of course they fly, but if they do not get lost they frequently return to their old quarters. Many cases of this kind have been reported, and I have had birds so attached to the comforts of their home that they even refused to leave the cage though the door was open all day long, and birds were free all around them.

Birds are naturally fond of their liberty, no doubt, and if I had the power to prevent it, not one should ever be caged, but after having interfered with their parental training, taken them from their natural life, and accustomed them to human care, to set them free seems to me to doom them to great hardships, if not to death.

OLIVE THORNE MILLER.

A Desirable Substitute for Carbon Disulphide as an Insecticide.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs:—The want of an efficient substitute for disulphide of carbon, one which should be free from the disgusting odor and extreme danger of this chemical, has long been felt by all having ornithological collections; and it seem not unlikely that the comparatively new preparation of formic aldehyde, known as 'formalin,' will fill this want.

Formalin is now easily obtained, is not expensive, and is neither inflammable, nor has it any unpleasant smell. The vapor of formalin is a powerful germicide, according to recent experiments; and only a few minutes are required for its complete diffusion and the disinfection of a room of moderate size. It is said to have no action on animal pigments.

A recent article on 'The Disinfection of Books by means of the Vapor of Formalin' concludes as follows:

"1. Books can be disinfected in a closed space, simply by vapor of commercial formalin by using 1 cc. of formalin to 300 cc. or less of air.

2. The vapor of formalin is rapid in its disinfectant action. The effect produced in the first fifteen minutes is practically equivalent to that observed after twenty-four hours.

3. An increase in the amount of air to each cc. of formalin is not counterbalanced by an increase in the length of time of exposure.

4. In case the disinfection has been incomplete, the vitality of the organisms has been so weakened that they survive only if transferred in a few hours to media suitable for their development.

5. The use of vapor of formalin is not detrimental as far as observed in any manner to the books, nor is it objectionable to the operator beyond a temporary irritation of the nose and eyes, somewhat similar to that produced by ammonia."

Having no infested bird-skins, and being unable to find any *Dermestes*, or other beetles, I can only speak of its effect on the 'Clothes Moth' and larvæ. A number of the moths and caterpillars with the material on which they were feeding, were put in the trays of a museum case, about 5½ cu. ft. in capacity; and in the middle tray a saucer holding a couple of teaspoonfuls of commercial formalin. The can was kept shut for an interval varying from two hours to five minutes, the experiment being repeated a number of times. Exposure to the vapor for half an hour or more was fatal to both moths and larvæ; while often fifteen minutes in the case was enough to kill the moth, and less frequently the caterpillars as well. A longer time may be needed for the formalin vapor to reach and destroy insects which are not on the outside of the specimens, and possibly the disinfection may be found not to be only superficial at best.

If the alcoholic solution — 'holzine' — can be obtained it would doubtless be better than 'formaline,' which is the aqueous solution of formic aldehyde.

I hope others will try this disinfectant, and report its success; for it would certainly be a gain if it were necessary to 'quarantine' our collections for only an hour or two, and without the odor and risk of fire, which now accompany the process.

Respectfully yours,

ARTHUR P. CHADBOURNE,

225 Marlborough St., Boston, Mass.

NOTES AND NEWS.

MAJOR CHARLES E. BENDIRE, U. S. A., one of the Founders, an Active Member, and a Councillor of the American Ornithologists' Union, died at Jacksonville, Florida, February 4, 1897, of Bright's disease, at the age of 61 years. He left Washington only five days before he died, in the hope of finding relief in the milder climate of Florida. His death, though sudden, was not altogether unexpected.

Bendire's chief work is his well-known 'Life Histories of North American Birds,' the second volume of which was recently reviewed in this journal (*antea*, pp. 104-106), but for many years he was a frequent contributor to 'The Auk' and to other ornithological journals. His death is a sad loss—in truth an irreparable loss—to American ornithology, occurring, as it has, with his great work on North American Birds less than half completed.

Major Bendire was born in Hesse Darmstadt, Germany, April 27, 1836, and came to this country in 1852. He soon enlisted as a private in the U. S. Army, and was gradually promoted till he reached the rank of Captain, in the Cavalry service, in 1886, and was shortly after retired for disability. In 1890 he was brevetted Major for gallant services rendered in fighting Indians in Montana in 1877! His long period of military service in the remote parts of the West gave him exceptional facilities for prosecuting his ornithological studies, which he evidently utilized to the fullest extent. His immense collection of birds' eggs, gathered during his military wanderings, long since became the property of the U. S. National Museum, where their donor has held for some years the position of Honorary Curator of the Department of Oölogy. He by no means, however, restricted his interests to the nests and eggs of birds, but was in all respects a well-equipped ornithologist, intent on investigating for himself all questions touching the work he had in hand.

He was well-known through correspondence, if not personally, to all working ornithologists in America, and to many abroad, but only those who knew him personally can appreciate his sterling integrity, his hearty friendship, his sincerity and earnestness.

In accordance with a standing rule of the Union respecting deceased Active Members (see *Auk*, XII, p. 199), a special memorial of Major Bendire will be presented at the next meeting of the American Ornithologists' Union, and published later in 'The Auk.'

HEINRICH GÄTKE, an Honorary Member of the American Ornithologists' Union, died at his home on the little island of Helgoland, on January 1, 1897, at the advanced age of nearly 84 years. He was an artist by profession, and visited Helgoland when twenty-three years of age for the purpose of making marine studies, and soon after was married there and made the island his life residence. He appears to have been early interested in birds, and soon after settling in Helgoland, he began to collect specimens and to make the observations on the migrations of birds, which have since made both Herr Gätke and the island of Helgoland famous in the annals of ornithology. Although he published many notes and minor papers on the birds of Helgoland, and on molting and color-change in birds, the ornithological results of his life work are comprised in his '*Vogelwarte Helgoland*,' published in 1890 (see Auk, VIII, 1891, pp. 299, 300), and republished in English in 1895 (see Auk, XII, 1895, pp. 322-346, and XIII, 1896, pp. 137-153). As this work has already been noticed at length in this journal, further comment is not necessary in the present connection. Suffice it to say that while his observations, covering a period of fifty years, on the birds of Helgoland, and particularly on their migrations, are of the utmost value, his deductions and conclusions based thereon are not equally trustworthy, owing doubtless to the very limited extent of the area under observation and the lack of experience elsewhere. The following is from a recent sketch of Gätke by Mr. H. E. Dresser, published in '*The Zoologist*' (March, 1897, p. 140). "Of very tall and commanding presence, with flowing hair and beard, . . . Gätke possessed an extremely genial and pleasant manner, and was an interesting companion. Always ready to impart information, he placed his notes most unreservedly at the disposal of any ornithologist who visited the island. . . . Although of German origin [he was "born at Pritzwalk, Mark Brandenburg"], he spoke and wrote English like an Englishman, and was in some respects even more English than German.

"Those who have known and learnt to appreciate his sterling worth will grieve deeply for him; but though he has gone his work remains, and his '*Vogelwarte Helgoland*' will stand as a monument of industry and careful observation, carried on during a long and useful life. His intellect remained unimpaired to the last few days, and his end was a most peaceful one, carefully tended as he was by his devoted family."

CAPTAIN PLATTE M. THORNE, U. S. A., an Associate Member of the American Ornithologists' Union, died at his home in Rochester, N. Y., March 16, 1897, after a short illness from a complication of ailments, at the age of 59 years. He was born in Poughkeepsie, N. Y., and was a son of Judge Thorne of that city. In 1861 he enlisted at the head of the One Hundred and Fiftieth New York Volunteers, and served with distinction throughout the Civil War, being at one time on the staff of General Slocum, and later Acting Inspector-General to General Sheridan. At the close of the war he was brevetted Lieutenant-Colonel for faithful and

meritorious service. Later he was placed in command of Company C, Twenty-second Infantry, U. S. A., and was stationed for many years at various remote posts in the West, Fort Thorne, N. M., being named for him. He was retired in April last for disability due to an accident while on duty at Fort Keogh. For many years he took an active interest in ornithology, becoming an Associate Member of the A. O. U. in 1885, and while well known to many of our leading ornithologists, through correspondence, he has published comparatively little. His chief paper is a 'List of Birds observed in the vicinity of Fort Keogh, Montana, from July, 1888, to September, 1892,' published in 'The Auk' in 1895, (XII, pp. 211-219). Previously he had observed and collected for six years at Fort Collins, Colorado, and in 1887 published 'Additions to Mr. Drew's List of the Birds of Colorado' (Auk, IV, 1887, pp. 264, 265). He was a careful, conscientious observer, and made a considerable collection of ornithological specimens, many of which have been generously loaned or presented to specialists for examination or study. A wife and six children survive him.

'THE OSPREY,' in its issue for March, makes the announcement that Dr. Elliott Coues has been secured as Associate Editor of this excellent magazine. In this connection the editor says: "Our endeavor will be to make 'The Osprey' as a popular monthly, what 'The Auk' is as a technical quarterly." The March number contains an excellent portrait of the late Major CHARLES E. BENDIRE, with a biographical notice of this eminent ornithologist by Dr. F. H. Knowlton; also a portrait of Louis Agasiz Fuertes, with a number of his recent bird paintings, and a short notice of his work by the Associate Editor. There are various papers and many notes of general interest, but unfortunately it includes one article, 'A Peculiar Hybrid', that might well have been omitted. With the new aid now secured doubtless such slips will not again occur, and the journal has doubtless before it an era of increased prosperity and usefulness.

AMONG new claimants for notice is the illustrated monthly 'Birds,' of which several numbers have appeared. It is published by the Nature Study Publication Company of Chicago, at the very low price, considering its character, of \$1.50 a year. It is profusely illustrated with colored plates done by "colored photography." The February number (No. 2) contains eleven quarto plates, representing the Blue Jay, Robin, Red-headed Woodpecker, Kingfisher, Red-winged Blackbird, and Cardinal, and four foreign birds, including a Mot-mot, Lory, etc. The illustrations are evidently photographed from mounted specimens, and thus show some defects in structural detail, but the colors are reproduced with surprising fidelity. The text is intended for popular reading, and some of the articles are written with special reference to young readers. The magazine should prove of much service to teachers in their

efforts to interest their pupils in birds, and seems especially worthy of commendation. We would suggest, however, that the publishers would do well to supply a table of contents with each number, to facilitate reference to the plates and articles.

WE HAVE before us No. 1 of Volume I of the 'Bulletin of the Michigan Ornithological Club,' published at Grand Rapids, Mich., "in the interests of Ornithology in Michigan." The Editor-in-Chief is L. Whitney Watkins, Manchester, Mich. The 'Bulletin' is to be published quarterly, and will doubtless prove a great stimulus to ornithological activity in Michigan and adjoining States. The Club, of which it is the official organ, has also taken a strong stand in favor of the strict enforcement of the game and fish laws of the State, and for the protection of birds. This first number of the Bulletin is in every way a credit to the Michigan Ornithological Club, and indicates earnestness and ability on the part of its members.

'THE ZOÖLOGIST,' in entering upon its Fourth Series, passes under the editorial management of Mr. W. L. Distant, Mr. J. E. Harting, who has edited the magazine so ably for the last twenty years, being obliged to retire on account of the pressure of other demands upon his time. While the typographic appearance of its pages remains for the most part unchanged, its long familiar exterior has given place to a pictorial, and perhaps more artistic cover, differing radically in color and make-up from that to which we have so long been accustomed. The scope of the Magazine is extended to include anthropology, at least so far as it relates to 'Early Man in Britain.' The official reports of Natural History Societies, however, will be omitted. The new editor trusts that the pages of 'The Zoölogist' may still "be filled with facts and conclusions, whilst controversy and hypercriticism may thus be crowded out." Under its new editorial management we trust the journal will continue to achieve the success that its sterling merit in the past has gained for it.

THE first fasciculus of a new Italian quarto journal of ornithology — 'Avicula, Giornale ornitologico italiana' — bears date Feb. 1, 1897. As its name indicates, it is to be devoted especially to Italian ornithology. The first number, consisting of 28 pages, begins the publication of a list of living ornithologists. Among the 'Notiziario' we are pleased to see the announcement of the formation of a society at Trieste for the protection of birds. In no country, perhaps, is there a greater need for such societies than in Italy. The journal is published at Siena, under the editorship of Sigismondo Brogi, with whom are associated as honorary editors Professor Enrico Hillyer Giglioli and Count Tommaso Salvadori, and numerous 'collaborators.'

A PROSPECTUS of a work entitled 'The Birds of Celebes and the Neighboring Islands,' by A. B. Meyer and L. W. Wiglesworth, has

been issued by R. Friedländer & Sohn of Berlin. About 350 species will be treated in two quarto volumes, with about 50 colored plates, and maps illustrating geographical distribution. The work is announced to appear during 1897. Subscription price, for the complete work, 10£.

MR. W. E. CLYDE TODD of the Biological Survey of the U. S. Department of Agriculture has in course of preparation a work on the birds of the western half of Pennsylvania, which work will discuss in detail their geographic distribution and migration within that section, as well as these subjects in general. That the work may be complete he needs the assistance of every reliable ornithologist and oölogist now residing in the section in question, or who has any notes, however fragmentary, on the birds thereof. He would be greatly obliged if every such person not already in correspondence with him would write him at once, feeling sure that such correspondence would be mutually helpful.

THE recently organized UNITED ORNITHOLOGISTS OF MAINE has elected the following officers for 1897: President, Arthur H. Norton, Westbrook, Me.; Vice President, Ora W. Knight, 384 Hammond St., Bangor, Me.; Secretary-Treasurer, Wm. L. Powers, Gardiner, Me. The object of this Society is to "encourage a systematic study of the Avifauna of the State" of Maine. The Society has already entered vigorously upon the preparation of a list of the birds of the State, showing their distribution by counties. An excellent report on the ornithology of Maine will doubtless result from this timely effort.

THE date of the organization of the Massachusetts Audubon Society is given in the report of the A. O. U. Committee on Bird Protection as 1886; it should be 1896. The first member was enrolled February 10, 1896, and on the first anniversary of the Society it had 1280 members, and is now growing very rapidly.

An 'Audubon Society of the State of New York' was organized in February, 1897, and is working in coöperation with the American Museum of Natural History. Mr. Morris K. Jesup, the President of the American Museum, is also the President of the New York Audubon Society. Miss Emma H. Lockwood, 243 W. 75th St., New York City, is the Secretary-Treasurer. All correspondence relative to bird protection in New York State should be addressed to her. Circulars explaining the objects of the Society and applications for membership may be obtained from the Secretary.

There is a growing sentiment for the protection of birds in various portions of the country, which will no doubt result in the formation of Audubon Societies in other States, and also in the founding of 'Bird Day' in the schools.

The Light-House Board, Washington, D. C., in response to a request of the A. O. U. Committee, has issued orders prohibiting the egg traffic on the Farallone Islands, California.

Mrs. Louise M. Stephenson, of Helena, Arkansas, who is doing very important work in that State, has been added to the A. O. U. Committee on Protection of Birds. Mrs. Stephenson has for some months contributed weekly articles on 'Bird Day in Schools' and 'Why Should We Protect Our Birds?' to two of the most widely read papers of Arkansas.

The Chairman of the A. O. U. Committee on Protection of North American Birds will be glad to hear from the readers of 'The Auk' regarding the protection of birds in their localities, and earnestly urges the formation of Audubon Societies. Suggestions as to the formation of such societies, and kindred work will be cheerfully furnished on request.—
WILLIAM DUTCHER, *Chairman, A. O. U. Committee on Bird Protection.*

THE following ERRATA in the last (January) number of 'The Auk' require correction.

Page 35, 7 lines from bottom, for *continued* read *combined*.

" 36, under figure in text, for *near A* read *near B*.

" 36, 6 lines from bottom, for *fig. 1* read *fig. 2*.

" 37, note 1, before *Feathers from Skins* omit *Cast-off*.

" 38, Explanation of Fig. 1, for *No. 4396* read *No. 4397*.

" 38, Explanation of Fig. 2, for *near B fig. 1* read *near A fig. 1*.

" 38, last line, after *obj.* insert *imm. oil imm.*

" 39, next to last line, for *C fig. 3* read *C fig. 4*.

" 118, last line, for *Cf. SALVADORI* read *Cf. ALLEN, Auk, XIII, 1896, 244.*

" 119, near bottom, for 375*c* read 375*d*.

" 123, line 8 from bottom, for 97 read 96.

" 125, line 15 from top, for BONAP. read (BONAP.).

" 125, line 17 from top, for A. O. U. COMM. MS. read FAXON, Auk, XIII, 1896, 215.

" 129, after line 2 from top, insert

GENUS **EMBERNAGRA** LESSON, p. 245. This becomes

" 131, line 5 from top, for (LATH.) read (GMEL.).

" 131, line 15 from top, for WILS. read (WILS.).

WARBLING VIREO.

PHILADELPHIA VIREO.



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NO. 3.

A STUDY OF THE PHILADELPHIA VIREO (*VIREO PHILADELPHICUS*).

BY JONATHAN DWIGHT, JR., M. D.

Plate II.

THE Philadelphia Vireo was first described as a new species nearly half a century ago by Mr. John Cassin, from a specimen taken near Philadelphia, Pa., in September, 1842 (Proc. Acad. Nat. Sci. Phila., V, Feb. 1851, p. 153, pl. 10, fig. 2). It was many years later before anything was known of the breeding habits of the birds, and an article by Mr. William Brewster (Bull. Nutt. Orn. Club, V, 1880, pp. 1-7), who found the species rather commonly distributed over the Lake Umbagog region in western Maine, remains to-day the only sketch we have of them. I should perhaps except the notes of Mr. E. Seton Thompson who, in 1884, found a nest and eggs near Fort Pelly, Assinibola, and briefly recorded the circumstance (Seton [= Thompson], Auk, II, 1885, pp. 305, 306). Few other observers have been favored with more than rare glimpses of the birds, which are still considered prizes wherever they are captured. And yet many specimens, almost wholly migrants, have been recorded of late years, so that the geographical distribution of the species is pretty definitely established. It appears to winter in Central America, as far south as

Costa Rica, and during the migration to the United States, being most abundant in the West. Its breeding range probably covers a large part of the Rocky Mountains and a few adjacent northernmost United States. Breeding has been recorded from New Brunswick (Edmundston), Ontario (Ottawa), Ontario (Moose Factory), Manitoba (Assiniboia (Fort Pelly)), the last the westernmost record in the United States, from Maine (Lake Umbagog), New Hampshire (Franconia), Indiana (Carroll County), Illinois (Rocky Mount), and Dakota (Red River Valley), and New York. The westernmost record in the United States is from the westernmost record in the United States. There is no good evidence of the occurrence of this species as a migrant, in Michigan, Wisconsin, and Minnesota, but it is expected, for it has been recorded as a migrant in those States. Numerous other records need to be collected for they have received ample treatment. This paper served me only as a basis on which to present the facts here presented.

Mr. Brewster was the first to acquire the Philadelphia Vireo, and it is long that I now wish to consider these more again before the public after they lie affairs quite undisturbed for the terms of considerable intimacy with their acquaintance during portions them near the little village of T Canada, where I have found the experience with them has been and consequently my remarks are the nature of a postscript to his

It was on the 10th of June that I introduced herself to notice in the garden — at least I took it to be a bird — the way she kept ruffling and fluffing herself as many birds do when no nest could be found, nor any visits to the same spot.

I have studied the birds from the middle of June to the end of the month the song begins. After the first days of July their notes are a subdued warble at rare intervals. They are in the bushes almost exclusively, but it has been their wont, to favorite perches. In July, in the second week, the young appear, which, I regret to say, I have not been able to find and betray their presence like all inconspicuous unfortunate demands for food; and no more shift a little for themselves than the trouble thrust upon them in the shape of a hawk begins as early as the 20th of July and is completed during the second week of August. The young have also acquired their fall plumage, decidedly different from that of the adult. They are found associating with small restless birds, perhaps a couple of Magnolia Warblers, a Red-eyed Vireo, a stray Redstart, the summer sojourners, not forgetting the Redstarts, ready with their irrepressible remarks. At last, the Philadelphia Vireos seem to disappear. At least I have not found them later than this time of their life is completed. They are more abundant than the Red-eyed Vireos over the summer, outnumber them perhaps ten to one, and many passes without my seeing or hearing a single one. In summer I am able to locate upwards of a dozen. When the males are singing they may give notice. The device of squeaking on the back of the head has charms for them while at others, particularly when they are moulting, it has no effect whatever. The noise does not fail to stir up the nearest White-throats, who storm with untiring vigor until all the birds in the vicinity have come to see what the row is about. The Black-throated Thrushes, the Magnolia Warblers, the Canadian Redstarts, the Red-eyed Vireos, yes, all the birds

within earshot, rush to the scene, take a hand in the chorus and having expressed their opinions discreetly retire. Very often a Philadelphia Vireo, seldom two, will join in the rumpus for a little while but they soon slip away satisfied, leaving the White-throats as boisterous as ever in their denunciations.

It is impossible not to be struck with the close resemblance between the Philadelphias and the Red-eyes in appearance, actions, and habits, as well as in song. Both frequent the same localities in the wilderness, but the Philadelphias rather shun civilization and rarely appear, like the Red-eyes, in the village trees. Both prefer to sing in the upper branches, but I have seldom found the Philadelphias in the rambling groves of birches which are the especial delight of the Red-eyes, and they are more partial to the low, bushy, second growth or copses of alders sprinkled with stray trees. Both hop from bough to bough in search of food, singing as they go, and in actions the one is almost the counterpart of the other, save that the smaller bodied Philadelphias are quicker in their movements as contrasted with the lazy leisure of the Red-eyes. Another point of difference is in the amount of curiosity displayed, the Philadelphias exhibiting comparatively little while the Red-eyes, fairly brimming over with it, never fail to seek the reason for unusual sights or sounds. The Philadelphia's song is much slower than that of the Red-eye, while his scolding notes are much more rapid and less evenly delivered.

There would seem to be a streak of ill-temper in the mental composition of this little Vireo, which manifests itself in brief outbreaks of scolding. These notes are even interjected into the song, and also greet you unexpectedly in the woods, as if you had disturbed nest or young, but many of these rude birds turn out to be males and can never be found a second time in the same locality. The fact is, unless they are in full song, it is no easy matter to find them in the same neighborhood two days in succession, for the bushes are very thick and afford safe cover. In fine weather their pleasing music may be heard from daybreak till midday, and again in the afternoon, but when it is dull and rainy or hot they often remain perfectly silent. While the female is incubating, her mate will spend hours in song, choosing an elevated perch or roving about, high and low, singing as he goes. Later in the

season he keeps altogether in the bushes, warbling now and then, as if under his breath, in soft and disjointed measures. Sometimes a pair is to be seen rambling together through the low bushes, uttering peculiar soft little clicks and squeaks the while, but I must confess I find them at all times adepts in the art of concealment, although they are never really timid.

There was one bird that I used to watch by the hour. He was usually to be found singing on a particular twig near the top of a tall poplar, one of a small group that he claimed as his exclusive domain. When I first saw him, flakes of poplar-down were filling the air and lay drifted like banks of snow in every nook and corner, for it was then the middle of June and early summer was in full swing. The daily round of life of my little friend *philadelphicus* seemed to closely correspond with that of others that could not be so regularly studied, and his traits differed in small degree from those of his brethren. He would sing the whole of the morning, scarcely skipping a note for upwards of half an hour at a time. During the song he contrived to keep his body in continual, restless motion as if on the point of taking flight, but in reality he did not even shift his hold on the bough. After a time, impelled no doubt by hunger, he would roam about in the adjacent trees, hopping with deliberation from limb to limb and turning his head from side to side in search of food. Occasionally grasping the very end of a branch he would sway upside down while investigating its insect possibilities, or swiftly pursue and catch in the air some heedless fly. His now interrupted snatches of song were infrequent and his scolding, mewing notes would be heard from time to time. At length descending to the adjacent bushes, he would be joined by his mate, doubtless from her nest, and with soft lispings murmurs they would soon be lost in the tangle. Later on, I would hear him again from the old stand, or before returning thither his melody might be heard in some of the small trees that dotted the expanse of bushes. And so the days would slip uneventfully by with alternate periods of song and quiet.

I feel confident the nests are not placed in the trees, for in the localities where I have found the Vireos an examination of their very tops is accomplished without much difficulty. Besides, the only nest ever taken, that found by Mr. Thompson, was suspended

only ten feet from the ground in the twigs of a willow. It contained four eggs on the 13th of June, which resembled the eggs of the Red-eye but unfortunately were accidentally destroyed. I used sometimes to meet with incubating females that made very little fuss, perhaps merely leaning forward from a branch near at hand, the crown feathers raised in silent inquiry. But usually they gave vent to their disapproval of my presence in bursts of vigorous mewling notes in which the male heartily assisted. He does not, however, assist in incubation, like his relation the Warbling Vireo, but devotes himself to melody, and a very cheerful melody it is too.

SONG.

To my ear the song partakes of the liquid sweetness and leisurely irregularity of that of the Solitary Vireo, the notes being sweeter, clearer, and a trifle higher pitched than those of the Red-eye. It is no easy matter to describe the song of a bird intelligently. We do not know their language nor have we alphabetical signs or musical notation, that can convey to us more than a faint idea of bird music. Fortunately we have comparisons to fall back upon, and as the song of the Red-eyed Vireo is well known to many of us, some idea of that of the Philadelphia Vireo may be gained when I say that while the former rapidly ripples out his music, the latter reiterates slowly a series of double or triple notes with marked pauses between. My experience has been that having once heard *philadelphicus* you will seldom mistake it for *olivaceus*, while the reverse will not hold. There is more reduplication of notes in the song of the Red-eye and one might say, less time for taking breath. In Mr. Brewster's account of the birds, which I can corroborate in every particular, he speaks of a "double-syllabled utterance" coming in irregularly with the general song. I would merely emphasize the fact that it is the essence of the song and enters into it at as regular intervals as any of the other notes. It is a liquid note, beginning the song and occupying about three fifths of a second for the two syllables of which it is composed, on both of which considerable emphasis is laid. There seems to be a slight trill or ripple between the

syllables when heard close at hand and the inflection rises slightly on the latter. A pause follows, approximating one and two fifths seconds, and the first note is again repeated, less forcibly and slightly varied. Again the pause ensues, and now it is followed by a triple note, not interrogatory and indistinguishable from one of *V. olivaceus*. Again the pause, this time followed by a repetition of the triple note, slightly varied so as to lose some of its sibilance, and after the customary pause of one and two fifths seconds, the song is repeated from the beginning, nearly eight seconds having elapsed in completing one cycle. The four notes may be suggested by the syllables *chür-r'wě*, *chür-wě*, *psī-i-rě*, *psī-r-rě*. The sequence of the notes, however, may vary a little, owing to the occasional substitution of one for the other, but the same one is not repeated more than twice in succession, even after a break in the continuity of the song. Heard at a distance, it practically reduces to two alternated notes, which I find represented in my note books of different years as *chür-wip*, *tür-i-dip* in one place and *psi-wü'rt*, *psi-wü-tit* in another. The discrepancies are instructive, showing independent efforts on my part to lay hold of the same sound.

The speed at which the song flows on is an interesting factor and is remarkably uniform for each individual songster, — in fact, I could almost identify certain Philadelphias and Red-eyes by timing their songs. *V. philadelphicus* sings at the rate of from twenty-two to thirty-six notes a minute, averaging a trifle over twenty-six, while *V. olivaceus* rattles on at the rate of from fifty to seventy, their song rate averaging a trifle over fifty-nine. I do not mean to assert that there were always just so many notes in a given minute, for both species pause irregularly and drop out notes now and then, but if all were uttered in the same cadence as those actually heard, these figures would be equaled, and, in fact, very often are equaled. They are, however, only to be satisfactorily obtained at the height of the song period, and but for the careful use of a stop-watch I would hardly feel justified in presenting them. Some individuals are better songsters than others, but all follow more or less closely the type I have endeavored to describe. The song is sometimes a softer and disjointed affair and this soliloquizing type is characteristic of the wane of the song period.

Besides the song, this Vireo has the scolding note already mentioned. It does not resemble the corresponding complaint note of *olivaceus*, but is almost exactly like the aggressive nasal *mÿä* of *gilvus*, which has a suggestion of the katydid about it. It is usually rapidly repeated five or six times or intermitted and continued irregularly by series of from three to eight or more. Males and females both make use of it, raising the feathers of the crown into a crest at the same time so as to look quite angry. This is the first sound imitated by the young birds, though usually rendered by them one note at a time and in a rather 'scrapey' voice, while the approach of the food-laden parent will excite a chatter, marked chiefly by its incoherent rapidity.

The other regular notes of the adults are the indescribable soft clickings and squeakings of which I have already spoken, a mine of low music intended as household gossip when the loud song is laid aside. These, as well as the scolding notes, are also interspersed in the intervals of the soliloquized song in which the male indulges when roving at will.

It is evident that but one brood is raised in a season. I have seen young birds as early as July 7, comical little chaps largely bare skin and the promise of a tail. At this tender age they are unwilling to essay flight except when urged by anxious parents to make a clumsy, flying leap from one twig to another, but they are knowing enough to keep quiet when they hear a crashing in the bushes, and as they become older they lose no time in moving quickly away. I have found them in alder thickets or along some of the bushy cattle paths which end abruptly at steep walls of rock or lose themselves in small clearings. In fact I never could tell when or where I might run across the birds, young or old, but during the latter part of July, when the moult is in progress, it is almost impossible to find them anywhere. I associate them, however, with the alder patches where they wander loudly singing in early summer, softly warbling in midsummer, and becoming silent long before the chill of autumn has come. It could be said that the Philadelphia Vireo might well emulate his indefatigable relation, the Red-eye, whose song period extends day in and day out well into the fall, but our little friend undoubtedly knows well what he is about or he would not have successfully

hidden himself from the world for so many years. He is to be expected and should be looked for as a regular summer resident in many of the wilder regions of Canada.

PLUMAGE AND MOULT.

There yet remains something to be said regarding the plumage and moult of the birds. On the accompanying plate is figured an adult male *Vireo philadelphicus* in breeding dress, contrasted with *Vireo gilvus*, the species it most resembles in plumage. It may be seen at a glance how much yellower *philadelphicus* is, a difference that holds in all plumages and at all seasons of the year. A more distinctive character, however, than color is found in the short first primary of *gilvus*, which is abortive and practically absent in *philadelphicus*, the former, therefore, having by actual count ten primaries, the latter apparently only nine. *V. philadelphicus* in the spring is distinctly washed below with pale lemon yellow, which is deeper in the fall dress. When seen in the trees the birds may easily be mistaken for the small females of *Vireo olivaceus*, and they also bear a certain resemblance to *Vireo belli*, which western observers would do well to remember.

My series of twenty-six specimens is an instructive one, containing as it does spring, summer and autumn birds, old as well as young. From among the latter I select the following as typical of the first or nestling plumage here described for the first time.

Young in first plumage (♂ juv., No. 3670. Collection of J. Dwight, Jr., Tadousac, Quebec, July 13, 1893):—Above, olive-brown, paler on the head, nape and rump. Below, pale primrose-yellow deeper on the flanks. Side of head, including the auriculars and superciliary stripe, buff-yellow; orbital ring faintly yellow; trace of dusky loreal and post-ocular streak. Remiges (including coverts) and rectrices clove-brown narrowly edged externally with olive-green, brightest on the secondaries, becoming olive-gray at the apices of the primaries and secondaries and strongly tinged with brown on all the wing-coverts. Iris, deep hazel brown. Feet, pinkish buff, drying to a dusky wood-brown. Bill, pale bistre, the lower mandible flesh tinged, drying to a yellowish raw umber-brown.

The specimen is very young, the wing quills and their coverts only about one half grown, and the tail is barely sprouting. The yellow below serves to at once distinguish it from either *gilvus* or

olivaceus, both of which are silky white below at the same age. Other specimens in my series show the change of the young into autumn plumage, which is acquired, as in *Vireo olivaceus*, without moult of flight-feathers or tail. These remain, although the body-feathers begin to be replaced by new ones before the wings and tail have attained their full growth. The feathers retained are the primaries, their coverts, the secondaries, the tertiaries, and the rectrices, — all the rest of the plumage is evanescent and is renewed soon after the bird leaves the nest. A bird taken July 28 has the wings and tail fully grown but the deciduous sheaths are still in place at the bases of the quills. The brown upper parts are mottled with the bright olive-green autumn feathers which have extensively replaced the others on the nape, back and rump. The forehead and sides of head show many new feathers. A yellow band below in strong contrast to the paler first plumage, has developed on the throat and shows faintly on the flanks beyond the forking of the inferior feather tract. The new wing-coverts (except the primary coverts) are beginning to sprout. A bird taken August 4 is farther advanced. The sheaths of the quill feathers have disappeared; the wing-coverts are nearly full grown; and the new body plumage is nearly complete, only a few feathers still in their sheaths sprouting here and there. A bird of August 6 is almost entirely in fall dress, and others of August 15 are still moulting a few auricular and abdominal feathers, while one of September 24 shows no trace whatever of the moult and is practically indistinguishable from the adult. Still, in average specimens the yellow below is a little richer and extends further over the abdomen and the bill is yellowish instead of blackish as in the adult.

Whether there is any spring moult in this species I am unable to say for I have seen no specimens taken at a time when it might be expected to occur, but the state of the plumage in spring birds indicates that there is none. The fall plumage of young and old is probably worn until the next annual moult, which begins towards the end of July. In spring specimens the amount of yellow is variable, although paler than in the fall, and the abrasion is not at all marked, but this is to be expected in an arboreal species. A specimen of July 22 is the earliest one that shows signs of moult.

There are a few pin-point new feathers on the breast, the crown and the back; the ninth and eighth primaries have been replaced by new quills one quarter grown, the ninth slightly longer than the eighth, and the seventh barely shows as a minute follicle. Specimens taken later show the progress of the moult which is complete, body-feathers, wings and tail. There is considerable individual variation in the sequence of development of the feathers of the different tracts, but the development is pretty uniform on the whole and seems to radiate from various centres. The earliest new feathers appear on the breast, near the forking of the inferior feather-tract, and on the back in the interscapular region. The crown shortly begins to moult and the inner primary (the ninth by count) falls quickly followed by the eighth. The body plumage is quite rapidly renewed, the corresponding primaries of each wing slowly falling in pairs with their coverts so that the body plumage is largely renewed before the outer primaries fall. The wing-coverts begin to be renewed after the primaries begin to fall and are usually complete before the outer primaries are replaced. The outer members of the rows are the first to be moulted and this also applies to the tertiaries which are completely renewed before the secondaries begin to fall. This occurs when only three or four of the old outer primaries remain, and the rectrices also fall at this stage, or a little before, beginning with the middle pair. The outer secondary of each wing falls first while the inner secondary and the alula are the last parts of the wing to be renewed. The renewal of the body plumage is usually very well under way before the moult is conspicuous in the wings, but the last traces of new growth are usually a few auricular and abdominal feathers and perhaps a few on the chin and scapular region. A bird of August 4 is particularly instructive. All that remains of the old dress are a few auricular, scapular and abdominal feathers of the body plumage, the outer pair of rectrices of the tail, the three outer primaries, their coverts, the alula, the five inner secondaries, and much of the lining of the wing.

I have followed the moult with considerable detail because nothing has been known regarding it in this particular species, and it seems probable from the material I have handled that it is typical of all of our Vireos.

I have taken this opportunity of describing the unknown first plumage and I have exploited the birds themselves in a manner which I trust has been of interest to my readers. The Philadelphia Vireos themselves, however, may think I have trespassed too much on my acquaintance with them.

THE TURKEY QUESTION.

BY DR. ELLIOTT COUES.

I WOULD not bring up this vexatious matter if we could flatter ourselves that we had settled it acceptably in the A. O. U. Check-List. That we have not done so is evident; for the British Museum Catalogue of 1893 reverses our decision, in so far as nomenclature is concerned; and we are not likely to be supported in that position by any writers except those who copy us blindly. In my judgment, we are exactly wrong; and I hope to see the wrong righted in the next edition of the List.

My contention is, that the name *Meleagris gallopavo*, as now restricted, belongs to the Mexican Turkey, and that some other name must be found to distinguish the Wild Turkey of the United States. There is no material fact of ornithology in dispute; the issue is simply the proper application of our rules in this instance; it is independent of any question whether the two birds be regarded as full species, or as subspecies; it is independent also of any question of the availability of Bartram's name *americana*. The point is, to which form of *Meleagris* does the Linnæan term *gallopavo* properly attach?

On various former occasions when I was treating of these birds—as in all the editions of the 'Key,' in the 'Birds of the Northwest,' in the 'Century Dictionary,' and in other publications, I have taken the ground that *M. gallopavo* designated the form called *M. mexicana* in 1856 by Gould, on the theory that the Linnæan name was based primarily upon the domestic Turkey,

which is incontestibly descended from the Mexican bird, mainly if not entirely. This is the view taken by most writers, as by Baird in 1858, 1866, and 1874, and endorsed by such high authority as Newton in the following terms (Zool. Rec. V, 1868, p. 102): "It seems to us that the name *gallopavo* must be retained for the tame race, and consequently for the species whence it has sprung, having been applied by Linnæus to the form domesticated in Sweden."

This is quite true; but I am willing to recede from the extreme of my position to the length of conceding that there may have been and doubtless were European importations of the United States bird as well as of the Mexican, and that thus both forms may have been actually concerned in the production of the domestic races. This does not alter the nomenclatural aspects of the case one iota; it simply makes the Linnæan *M. gallopavo* a composite, to be dealt with by our ordinary rule for such cases; which is, that the original name of a composite shall be retained for what is left of the compound after a new available name has been bestowed upon any one of its components. I do not doubt that *M. gallopavo* of Linnæus 1758 or 1766, covered all the Turkeys that author ever saw or heard of; and in that case, what was the first tenable name given to distinguish two or more forms, and to which form was such name applied?

Clearly, the United States bird was distinguished *from* the Linnæan *gallopavo* by several names, of different authors, long before Gould named the Linnæan residuum *mexicana*.

1. The first of these is *Le Dindon sauvage*, *Gallo-pavo sylvestris*, BRISS., Orn. I, 1760, p. 162, based exclusively on the New England Wild Turkey, *Gallopavo sylvestris Novæ Angliæ* of RAY, Syn. 1713, p. 51, No. 3. But Brisson was not a binomialist, and his name is unavailable, though it had been already used by Catesby, and was afterward brought up by Le Conte.

2. Probably the next names for the United States bird are *M. americana* and *M. occidentalis* of BARTRAM, Trav. 1791, p. 290 and p. 83. But Bartram, they say, was no binomialist, and I pass him by in this connection; though my most ardent opponent in Bartram's case, my friend Dr. Allen, has used *occidentalis* for the New England bird (Bull. Nutt. Orn. Club, I, 1876, p. 55), not-

withstanding the fact that, as based on the Florida bird, it probably indicates the form now known as *M. g. osceola*.

3. *M. palawa* BARTON, Med. and Phys. Journ. II, 1806, p. 163, is another name for the United States bird, which may be passed by as resting on no description.

4. We next come to *M. sylvestris* VIEILL., Nouv. Dict. d' Hist. Nat. IX, 1817, p. 447, and *M. pera*, VIEILL., Gal. Ois. II, 1825, p. 10, pl. 201, both belonging to the United States bird, and one of them being tenable for it, if none of the foregoing be available.

It is thus seen that all the distinctive names of Turkeys belong to the United States bird, down to the time when Gould distinguished the other one; and that his name is a pure synonym for the Linnæan *gallopavo* after elimination therefrom of our common Wild Turkey. How then can the latter be considered the true *gallopavo*, and *mexicana* be tenable?

Inspection of the Linnæan basis of *gallopavo* will show its thoroughly composite character. The diagnosis, habitat, etc., cover both forms. The first citation is of the Fn. Svec. 1746, p. 198, which is of course the domestic bird. The second is Ray, as above noted, which is the New England bird. The third is Albin, 1740, pl. 35, which is the domestic bird. Then under β comes the *gallopavo* of Gesner, Aldrovandus, Belon, Jonston, Willughby, Ray again, and Brisson's pl. 16 — such references to the fathers and patriarchs including of course all Turkeys, though mainly bearing upon the domestic race. Finally, the Linnæan γ is the "*gallopavo cristatus*," being the crested variety of the domestic bird, as figured by Albin, 1738, pl. 33.

If I be wrong in this contention, it should be easy to refute me, as I advance no new facts — there are probably none to be found, so well is the whole case already known; and unless I have forgotten or overlooked some material point which will reverse my decision, we must use *M. gallopavo* for the Mexican bird, and find some other — I care not whether *americana*, *palawa*, *sylvestris*, or *pera* — for the common wild Turkey of the United States.

The error in this case is probably traceable to Baird, 1858, when *mexicana* was adopted; whence it went into the 'Hist. N. A. Birds' in 1874, as a matter of course, and thence by an easy transition was imported into our 'Check-List': though I had meanwhile set the matter right in the 'Key' and elsewhere.

There is probably another change required in our nomenclature of this genus; certainly so if, as some think, *M. g. ellioti* of SENNETT, 1892, is synonymous with his *M. g. intermedia* of 1879.

Agriocharis ocellata is a term which has been applied to the Honduras Turkey, which differs superspecifically from *M. gallopavo* in the lack of pectoral bristles, peculiar carunculation of the head, long sharp spurs of the male, and ocellation of some portions of the plumage, as set forth by CHAPMAN, Bull. Am. Mus. Nat. Hist. viii, 1896, p. 288.

SOME ABNORMAL COLOR MARKINGS.

BY GERRIT S. MILLER, JR.

MANY instances of albinism, melanism, and other abnormal color conditions in birds have been recorded,¹ but these records are for the most part concerned with cases in which large, conspicuous, and indefinite areas of the plumage are affected. While such abnormalities are interesting they are greatly outweighed in importance by others, usually of a less noticeable character, in which the unusual markings are so arranged as to resemble normal color patterns. Suggestions of characters of related species are often to be found in these symmetrical markings, some of which might be regarded as the result of hybridism did not the well known hypothesis of atavism offer a more satisfactory explanation of their occurrence. I wish to call attention to a few of the more conspicuous among the many cases of this kind that have come to my notice.

Colaptes auratus (Linn.).

An adult Flicker (No. 5619, Miller collection, purchased many years ago in the New York markets by J. G. Bell), normal in

¹ See, for instance, Deane, Bull. Nutt. Orn. Club, I, pp. 20-24, IV, pp. 27-30; Brewster, Auk, XII, pp. 99-100; Toppan, Bull. Ridgway Orn. Club, No. 2, pp. 61-77.

every other way, has all the white feathers of the rump marked subterminally with round or subcordate spots of black. The larger feathers of the rump are in addition crossed or nearly crossed by from one to three black bars, each of which tends to narrow near the shaft so that occasionally the constriction divides the bar into two distinct spots.

In the Cuban *Colaptes chrysocaulosus* the color is similar to that of *C. auratus* except that it is everywhere strongly suffused with tawny, the black markings are more extended, and the feathers of the white rump patch are closely and irregularly barred with black. Each rump feather in this species has a subterminal broadly cordate black spot extending nearly across both webs. Usually a broad black bar and sometimes a second (the latter always indistinct) crosses the feather below the terminal spot. The proximal bars tend to narrow near the shafts of the feathers, but they seldom if ever break up into pairs of spots as in the abnormal *C. auratus*.

The peculiarities of its rump markings make No. 5619 an almost perfect intermediate between *Colaptes auratus* and *C. chrysocaulosus*. Did the breeding ranges of these two species overlap this specimen would probably be considered by many a hybrid, since so-called hybrids often blend the characters of their supposed parents no more perfectly than this Flicker does the peculiarities of the Continental bird and its Cuban representative.

Nucifraga columbiana (Wils.).

One Clarke's Nutcracker in the series of thirty-three skins in the U. S. National Museum (No. 99858, Mt. Lassen, Calif., June 23, 1884) has most of the greater and lesser wing-coverts spotted with white. The spots, though small, form wing bars nearly as distinct as those normally present in the European *Nucifraga caryocatactes*. The wing-coverts in adult *N. columbiana* are normally plain, but the extreme tips in immature birds are usually very pale gray, thus forming a distinct contrast with the rest of the feather.

Pipilo erythrophthalmus (Vieill.).

A Towhee from North Truro, Mass. (♂ ad., No. 4208, Miller collection, August 12, 1889) is normal in all respects except that

the scapulars on each side are conspicuously edged with white. The marking is only slightly less extensive than in a specimen of *Pipilo maculatus oregonus* taken at Victoria, B. C., on August 1, 1888. Eastern Towhees with spotted scapulars have been recorded before but such specimens are always of interest.

Junco hyemalis (Linn.).

An eastern Junco (♂ ad., No. 4956, Miller collection, North Truro, Mass., April 12, 1890) has the wing-coverts tipped with white so that two distinct bars are formed in each wing when the feathers are properly arranged. These bars are narrower than in most specimens of the western *Junco aikenii*, but I have seen individuals of the latter in which they are less well developed than in the North Truro bird. Juncos with white wing bars have been found in the Eastern States before but they are of very rare occurrence.

Piranga erythromelas Vieill.

Three adult male Scarlet Tanagers in the collection of Dr. A. K. Fisher have conspicuous wing markings strongly suggestive of those normally present in the western *Piranga ludoviciana*. In two of these birds (No. 4017, Washington, D. C., May 18, 1890, and another taken at Sing Sing, N. Y., on May 22, 1880) the greater coverts are almost wholly bright scarlet. In the other (No. 919, Sing Sing, N. Y., May 16, 1881) the greater coverts are gamboge yellow narrowly edged with black. The yellow is brighter than that occupying the same position in *P. ludoviciana* but the bar formed by it is not so broad as that of the western bird.

Ampelis cedrorum (Vieill.).

An adult Cedar Bird (No. 5481, Miller collection, Providence, R. I., February 18, 1886, J. M. Southwick), otherwise normal, has the flight feathers in each wing spotted subterminally with dull grayish white. These markings are as nearly alike on corresponding feathers of the opposite wings as is ever the

case with a normal bilaterally symmetrical color pattern. On the distal primary the spot is very indistinct and nearly confined to the inner web where it occupies a space 3 mm. long (measured at the shaft) and 4 mm. from the tip of the feather. Toward the inner margin of the web the spot narrows rapidly and disappears without reaching the edge of the feather. On the outer web there is the faintest possible suggestion of a grayish trace close to the shaft and opposite the spot on the inner web. On the second and third primaries the spots become more distinct and extend nearly to the margin of the inner web. On the third primary the spot is 5 mm. long and 5 mm. from the tip of the feather. On the fourth primary in each wing the spot appears distinctly on the outer web, and from here on the portion of the spot on the outer web becomes larger and more conspicuous, that on the inner web at the same time diminishing until on the proximal true flight feather there is no mark at all on the inner web. The penultimate feather shows a trace of white on the inner web in the right wing, but none in the left, and the last spot is slightly larger in the right wing than in the left, otherwise the markings are exactly alike on the opposite wings.

While these markings have all the characteristics of a normal color pattern there is no known relative of the Cedar Bird with wings spotted in an analogous manner.

THE TERNS OF PENIKESE ISLAND, MASSACHUSETTS.

BY GEORGE H. MACKAY.

"In the lap of sheltering seas
Rests the isle of Penikese."

The Prayer of Agassiz,
JOHN G. WHITTIER.

IF THE reader will glance at the southern portion of a map of New England, it will be seen that there is a string of sixteen

islands extending from southern Massachusetts towards the westward, which are called the Elizabeth Islands. These islands divide the waters between the mainland and the island of Marthas Vineyard. That portion of the ocean at the southward is known as Vineyard Sound, and that to the northward as Buzzards Bay, so named by the early settlers of Dartmouth on the adjoining mainland, it is supposed, from the abundance of the Fish Hawks (*Pandion haliaëtus carolinensis*) formerly found there, these birds being called Buzzardet or little Buzzard in the earlier works on natural history.

It was on the westernmost island of this group that their discoverer, Bartholomew Gosnold, landed in 1602, and built a fort and storehouse, on a small islet in a pond at the western end of the island, which he named Elizabeth, in honor of the English queen of that name. This island, of about five hundred and sixteen acres, is known to the present generation as Cuttyhunk, and by the Indians as *Poocutohhunkunnop*.¹ It was formerly wooded with trees of various kinds. Situated at the entrances of Buzzards Bay and Vineyard Sound, with an altitude of one hundred feet above the sea, it affords one of the finest marine views to be obtained on the coast.

A little less than a mile away, in a north-northeast direction, is another small island of about seventy-five acres of upland, with an elevation of eighty feet, and formerly covered with cedars, none of which now remain. This island was named Hills Hap, by Gosnold, and from which he is said to have taken a canoe which he carried to England on his return. Locally this island was sometimes called *Pune*, but is known to the outside world as *Penikese*, which last name is spelled in quite a variety of ways. Nearly a mile from Penikese in an easterly direction is a gravelly shoal called Gull Island, and still farther away in the same direction lies Nashawena Island, which is distant a little over two miles, and on the southeast end of which, at Fox Point, a few Terns are said to breed. This at present treeless island is about three and a half miles long by one and a half miles wide, and contains about twenty-five hundred acres.

¹ I have availed myself of Ricketson's History of New Bedford for several references.

To convey a better idea of the status of the Terns domiciled on Penikese Island, it may, perhaps, be well to refer to its history during the past fifty years, in order that the reader may know with what persistency these birds have retained their love of home, notwithstanding the trying ordeals they have been subjected to during this period. Considering that the island is small, and composed of two elevated portions connected by a stony beach, with little or no sheltering verdure for the concealment of their eggs or young, the hard green turf being kept closely fed by over one hundred sheep, it was not without surprise that I witnessed the perseverance of these birds.

It would appear that about fifty years ago Charles Gifford inherited Penikese Island from his father; he sold it to Captain John Flanders, a pilot of Marthas Vineyard, who in turn sold it to Captain Beriah Manchester, master of a whaling vessel, who after keeping it about six or seven years, sold it to Mr. John Anderson, of New York, who built a large addition at the southern side of the old Flanders house and connected it with an annex built by Captain Manchester. This house at present is nearly surrounded by the only trees (large-toothed poplar, *Populus grandidentata*, and red maple, *Acer rubrum*) growing on the island, they having been introduced there. They have reached a medium height, but are doing only fairly well, the struggle for existence apparently being severe. Mr. Anderson had used Penikese Island as a summer home for four or five years, when Professor Louis Agassiz of Cambridge, Mass., was in quest of a location for a school of natural history. It resulted in Mr. Anderson's presenting the island, in March, 1873, together with an endowment of fifty thousand dollars, to Professor Agassiz for this purpose. The gift was coupled with the condition that in case the school should ever be abandoned the island should revert again to Mr. Anderson. The school was continued until the death of the senior Agassiz, and for about a year afterwards, under the supervision of his son, when it was given up, and Mr. Anderson consequently again came into possession of Penikese. After Mr. Anderson's death, his executors sold it to Mr. McGrougthy of New York City and Messrs. George S. and F. A. Homer of New Bedford, Mass., who held it in common for about five years, at

which time the Messrs. Homer purchased the interest of the former and now own the entire island. There was a serious fire in 1891 which destroyed all the school buildings, so that at present there remains only a barn, and the original dwelling house.

In 1850 a Menhaden Fishery was established on the east side of the island, which was abandoned about two years afterwards.

Ever since the earliest recollection, the Terns of Penikese and Gull Islands have been returning year after year to breed, notwithstanding that during this entire period (with the possible exception of those years during which the island was occupied by the School of Natural History, and of which I have no information) they have annually been unmercifully robbed of their eggs. As a sample story of what has taken place *this* year, 1896, I quote the following, told to Mr. Howe by a resident of Cuttyhunk Island: "I took in *one day* in June, 1896, *one hundred and eighty-two eggs*; a friend of mine gathered *two hundred and ninety-five* in *one day*, and for the season *nine hundred*. The Portuguese fishermen who frequent Penikese harbor carry them off by the bucket full, as do other persons, during the season." There are laws on the statute books of this State for the protection of these Terns and their eggs, but who is there to *execute* them?

As far back as Flanders's time (and undoubtedly earlier) he established a local custom, which seems to have been observed ever since, that anyone might take eggs up to June 10, after which date the Terns were permitted to lay and hatch their eggs. The birds undoubtedly availed themselves of this favor and have thereby preserved their present status. These conditions have existed for certainly fifty years, and it seems difficult to understand why under such circumstances these Terns should still continue to frequent these islands in such numbers as to preclude correct estimates of them. I should guess, however, that there may be six or seven thousand birds domiciled there, a number much less than are at present living in Muskeget Island waters. My old friend, Dr. Thomas M. Brewer, who passed a week on Penikese in August, 1873, estimated that, inclusive of the young birds, there were about one thousand Terns on the southern portions of the island.

On becoming convinced that a large colony still existed on Penikese and Gull Islands, I determined to visit it, if the necessary permission could be obtained. This permission the owners, the Messrs. Homer, kindly granted, and offered me every facility for carrying out my plans. These plans I communicated to my friend, Mr. Reginald Heber Howe, Jr., a fellow-member of the Nuttall Ornithological Club, who had agreed to accompany and aid me in the investigation, and whose help I desire to here gratefully acknowledge. We visited and remained on Penikese and Gull Islands June 15 and 16, 1896, checking off and examining every nest and egg we were able to discover; a condensed report of which work is here furnished. It will no doubt surprise the reader, as it did us, when we remember that up to June 10 about all the eggs that were considered good had been taken for food purposes. Next year I hope to see more favorable conditions prevail, and that these beautiful birds will be better protected.

During our observations on Penikese I noted that in a very large number of instances even the apology of the few straws for a nest to keep the clutch of eggs together were wanting. I also noticed that every little depression in the sward, as also any shallow, saucer-like hollows on the boulders, or at their bases, were utilized by the Terns to deposit eggs in, that they might not be rolled away, the sward being so hard that the birds were unable to excavate an artificial hollow for their reception. At several places on the island some fence rails had been carelessly thrown down on the ground, and even the spaces between them had been made use of by both *Sterna hirundo* and *Sterna dougalli* as nesting sites. To me it was a new experience to see these birds, so essentially of the beaches and sands, alighting upon and walking about over what was to all intents and purposes an elevated and close cut lawn.

Neither Mr. Howe nor myself observed a chipped egg or a chick during our visit, which is what might be anticipated under the local custom of taking the eggs till June 10.

The considerably larger portion of the Terns domiciled on Penikese Island are Wilson's; with them, mixed indiscriminately, are a goodly number of Roseates, breeding. I failed in detecting the presence of the Arctic Tern (*Sterna paradisæa*). Gull Island

would seem to be better adapted for their breeding purposes; while there I shot a number of dark breasted birds in the hopes that some of them might prove to be *S. paradisæa*, but they were all Wilson's.

As stated, Penikese Island is composed of two parts connected by a stony beach; the southeast portion is called the neck, while the other is the main island. Thinking there might possibly be some future advantage in keeping the account of the nests and eggs found on each, separate, I have so arranged them, and also those found on Gull Island. All the eggs observed were normal, there being nothing unusual to record.

Main Island.				PENIKESE.				Neck.			
130 Nests of 1 egg each, in all 130 eggs				135 Nests of 1 egg each, in all 135 eggs							
386	"	2 eggs each,	" 772 "	308	"	2 eggs each,	" 616 "				
228	"	3 " "	" 684 "	208	"	3 " "	" 624 "				
6	"	4 " "	" 24 "	5	"	4 " "	" 20 "				
7	"	5 " "	" 35 "	3	"	5 " "	" 15 "				
		Vagrant eggs	35 "			Vagrant eggs	9 "				
<hr/>				<hr/>				<hr/>			
757			1680				659				1419

GULL ISLAND.

10 Nests of 1 egg each, in all 10 eggs.			
15	"	2 " "	30 "
16	"	3 " "	48 "
0	"	4 " "	0 "
0	"	5 " "	0 "
		Vagrant eggs	2 "
<hr/>			
40			90

Total for Penikese Island, 1416 nests, 2055 eggs.

"	Gull Island.	40	"	88	"
"	Vagrant eggs		"	46	"

The 46 eggs designated as 'vagrant' were found by themselves with no appearance of their having been deposited by the birds where found.

Gull Island is but a small gravelly shoal of about half an acre in extent. It is elevated only three or four feet above high water mark. As far as I have been able to learn, it is at present only

slightly smaller than it was fifty years ago. A third of the island, on its northern side, is fairly well covered with coarse herbage and beach grass (*Ammophila arundinacea*). It is on this shoal that a little colony of about one hundred and fifty Roseate Terns (*S. dougalli*) and a few Wilson's (*S. hirundo*) are domiciled. Mr. Frederick S. Allen, who has been a resident on Cuttyhunk for fifty-four years, informs me that when he was a boy "the Terns were more abundant on Gull Island than on Penikese, to which island they extended to breed." He also thinks "there are as many Terns at the present time as formerly; cannot perceive any difference in their numbers." It nevertheless appears to the writer as unlikely, from the size of Gull Island, etc., that it could ever have furnished breeding quarters for more than a few hundred birds.

The first eggs were noted on Penikese Island in 1892 on May 20. In 1893 the Terns arrived May 10, in the night, an advance guard of several hundred being noted early the following morning at daylight; these all left before noon of the 11th, and on the morning of the 12th, before daylight, immense numbers had again arrived. In 1894 the advance guard arrived on the night of May 7. In 1895 the first eggs were noted on May 24. In 1896 the Terns commenced to arrive during the night of May 9; they were in evidence at daylight on the 10th, and continued to arrive all day, and on the morning of the 11th the usual colony had taken possession of the island. I am informed that the Terns had considerably diminished in numbers on Penikese by August 28, and that the young birds were all in the air and able to care for themselves; that after September 1 there were but few birds left, and that by the 17th all had departed. It was thought that those remaining the longer time did so in order to care for a few mutilated young birds that needed aid. These maimed young having been killed, the old birds departed as above. A goodly number of young birds were raised this season, as the owners of the island inform me that they did not allow them to be molested.

A LIST OF THE SPECIES OF ANSERES, PALUDICOLÆ,
' AND LIMICOLÆ OCCURRING IN THE
STATE OF LOUISIANA.

BY E. A. MCILHENNY.

THIS list is based on personal observations, extending through the past nine years. During that time I have observed our birds throughout the entire lake and coast regions of Louisiana, and all species included in this list have been taken.

I have endeavored to give the local names used by the natives; most of them it will be observed are French or of French origin, and the French names are the ones most in use.

It is a curious fact that so many of the Shore Birds, whose breeding grounds are in the Arctic regions, should be resident here. By the middle of June they all attain their full plumage and congregate in large numbers on the sand islands, where they cover the flats and shallow bays in search of food.

1. *Merganser americanus*. AMERICAN MERGANSER.—Known as *Bec Scie de mer* and Sea Sawbill. A common winter resident, found only in salt water.

2. *Lophodytes cucullatus*. HOODED MERGANSER.—Known as *Bec Scie* and Cotton-head. Very common in winter; resident in small numbers; breeds.

3. *Anas boschas*. MALLARD.—Known as *Canard Français* and French Duck; also as Green-head. A winter resident, and the best known duck in Louisiana. On April 28, 1896, I shot a male of this species that was mated to a female *Anas fulvigula maculosa*, and collected the nest with 10 eggs. This is the only record I have of this duck's breeding in Louisiana.

4. *Anas fulvigula maculosa*. MOTTLED DUCK.—Known as *Canard noir d'été*, and Summer Black Mallard. Resident; common; breeds.

5. *Anas obscura*. BLACK DUCK.—Known as *Canard noir*, and Black Mallard. A common winter resident.

6. *Anas fulvigula*. FLORIDA DUCK.—I took a pair of these ducks, with their nest and 7 eggs, on June 3, 1895, at Timbalier Island, on the south-east coast of Louisiana.

7. *Anas strepera*. GADWALL.—The *Canard gris*, Gray-duck, or Red-wing, as it is variously known, is a common winter resident.

8. *Anas americana*. BALDPATE.—Commonly known as *Zan-zan*, from the noise it makes; also as Widgeon and Whistling Duck. A very

common winter resident, and a good duck for the table, but rarely shot for market, as they get so fat they will not bear transportation.

9. *Anas carolinensis*. GREEN-WINGED TEAL. — Commonly known as *Sarcelle*. The most abundant winter resident of all the ducks.

10. *Anas discors*. BLUE-WINGED TEAL. — Known as *Printempsnierre* in the spring, and *Automnierre* in the fall. Very common during the spring and fall months; a few winter on the coast, but most of them go further south.

11. *Spatula clypeata*. SHOVELLER. — A very common duck during the winter. Commonly known as *Mesquin* and Spoonbill.

12. *Dafla acuta*. PINTAIL. — Commonly known as *Pian Queue* from the resemblance of the long feathers of the tail to a grass called *Pian*. Also known as Sprig-tail and Long-necked Duck. One of the most plentiful ducks in Louisiana, during the winter.

13. *Aix sponsa*. WOOD DUCK. — Known as *Branchier*; also as *Squealer*. This most beautiful of all our ducks is a common resident, and breeds wherever found.

14. *Aythya americana*. REDHEAD. — Commonly known as *Canard Violon*, because in flying it makes a noise like a violin, with its wings. Quite a common winter resident, in the bays of the southeast coast of Louisiana.

15. *Aythya vallisneria*. CANVAS-BACK. — Known as *Canard Cheval*, because of the sloping head. A winter resident, found always with the Redheads, but not so plentiful.

16. *Aythya marila nearctica*. AMERICAN SCAUP DUCK. — Most commonly known as *Dos gris*; also as Blue-bill. A common winter resident, on large bodies of water.

17. *Aythya affinis*. LESSER SCAUP DUCK. — A winter resident, more common than the preceding species, and not distinguished from it by local hunters. This duck remains with us in considerable numbers until late in the spring, and I have often seen flocks of 50 or more as late as June 1.

18. *Aythya collaris*. RING-NECKED DUCK. — Known as *Canard noir*, and Raft-duck. A very common winter resident.

19. *Clangula clangula americana*. AMERICAN GOLDEN-EYE. — Known as *Plongeur*; also as Golden-eye. A very common winter resident.

20. *Charitonetta albeola*. BUFFLE-HEAD. — Commonly known as *Mariounette* and Butter-ball. A common winter resident, on the coast.

21. *Erismatura jamaicensis*. RUDDY DUCK. — The only name I have heard applied to this duck is God Damn, on account of its worthlessness. A common winter resident, on the salt water bays.

22. *Dendrocygna autumnalis*. BLACK-BELLIED TREE-DUCK. — Commonly known as Fiddler Duck. Not common. Resident, as a few remain on the coast all the year. I have never taken them breeding.

23. *Dendrocygna fulva*. FULVOUS TREE-DUCK. — Known as Yellow-bellied Fiddler Duck, also Long-legged Duck. Resident. Breeds. Not common.

24. *Chen hyperborea*. LESSER SNOW GOOSE.— Commonly known as *Oie blanche*; also as White Brant. Very common in winter. Small flocks of cripples remain on the coast during the summer, and the cattlemen around Chenier au Tigre claim they occasionally breed there.

25. *Chen hyperborea nivalis*. GREATER SNOW GOOSE.— A common winter resident, not distinguished locally from the former.

26. *Chen cærulescens*. BLUE GOOSE.— Commonly known as *Oie bleu* and Blue Brant. A very common winter resident.

27. *Anser albifrons gambeli*. AMERICAN WHITE-FRONTED GOOSE.— Known as *Oie caille* and Gray Brant. A common winter resident.

28. *Branta canadensis*. CANADA GOOSE.— Known only as *Outarde*. A common winter resident on the prairies of Louisiana, but rarely goes to the coast.

29. *Olor columbianus*. WHISTLING SWAN.— A winter resident on the southwest coast of Louisiana. I have never taken them east of Marsh Island. Commonly known as *Cygne*.

30. *Olor buccinator*. TRUMPETER SWAN.— Also known as *Cygne*. A winter resident on the coast; more common than the preceding species.

31. *Grus americana*. WHOOPING CRANE.— Resident; breeds. Known as *Grue blanche*.

32. *Grus mexicana*. SANDHILL CRANE.— Common. Resident. Breeds. Known as *Grue bleu*.

33. *Rallus elegans*. KING RAIL.— An abundant resident, breeding in all marshes, both fresh and salt. Commonly known as Rail and Marsh Hen.

34. *Rallus longirostris crepitans*. CLAPPER RAIL.— Known as Rail, Marsh Hen, and Prairie Hen. A common resident in all salt marshes joining the main land.

35. *Rallus crepitans saturatus*. LOUISIANA CLAPPER RAIL.— A common species wherever found; its range, however, is restricted to the mangrove islands along the southeast coast, between Point au Fer and Raccoon Pass. Locally known as Mangrove Hen. Resident. Breeds.

36. *Rallus virginianus*. VIRGINIA RAIL.— An abundant winter resident.

37. *Porzana carolina*. SORA.— Commonly known as Ortolan. Resident in small numbers. Common in winter, breeds sparingly.

38. *Porzana noveboracensis*. YELLOW RAIL.— Winter resident, not uncommon.

39. *Porzana jamaicensis*. BLACK RAIL.— A rare winter resident.

40. *Ionornis martinica*. PURPLE GALLINULE.— An abundant summer resident. Breeds in large numbers, wherever an extent of marsh and water is found.

41. *Gallinula galeata*. FLORIDA GALLINULE.— Known as *Poule d'eau de marais*. A common resident; breeds.

42. *Fulica americana*. AMERICAN COOT.— Known as *Poule d'eau* and Blue Peter. Resident in small numbers. Very common in winter. Breeds sparingly.

43. *Philohela minor*. AMERICAN WOODCOCK.—Known as *Bécasse du bois*, and Woodcock. Resident in small numbers, more common in winter. Breeds regularly.
44. *Gallinago delicata*. WILSON'S SNIPE.—Commonly known as *Cachecache*, and Jack Snipe. An abundant winter resident.
45. *Macrorhamphus griseus*. DOWITCHER.—Commonly known as *Dormeur*. Resident along the coast. I have never found them breeding.
46. *Macrorhamphus scolopaceus*. LONG-BILLED DOWITCHER.—Known as *Dormeur*. A common resident on the coast, does not breed.
47. *Recurvirostra americana*. AMERICAN AVOCET.—Known as *Bécassine de mer*. A rare winter visitant.
48. *Himantopus mexicanus*. BLACK-NECKED STILT.—Known as *Bécasse du marais*. Abundant resident. Breeds.
49. *Tringa canutus*. KNOT.—Known only as *Ventre rouge*. An abundant resident; does not breed.
50. *Tringa maculata*. PECTORAL SANDPIPER.—Only known as *Churook*. A very abundant bird during migration.
51. *Tringa minutilla*. LEAST SANDPIPER.—An abundant resident; does not breed.
52. *Tringa alpina pacifica*. RED-BACKED SANDPIPER.—An abundant resident along the coast. Commonly known as '*Ti ventre noir*'. Does not breed.
53. *Ereunetes pusillus*. SEMIPALMATED SANDPIPER.—Abundant during the spring and fall migration.
54. *Calidris arenaria*. SANDERLING.—Occurs only during the fall migration.
55. *Limosa fedoa*. MARBLED GODWIT.—Commonly known as *Bécassine*; also as Sea Snipe. Quite common during the winter along the coast.
56. *Totanus melanoleucus*. GREATER YELLOW-LEGS.—Known as *Pied jaune*, and Yellow-leg Snipe. Resident; most abundant during the winter. Does not breed.
57. *Totanus flavipes*. YELLOW-LEGS.—Resident; most abundant in winter. Does not breed.
58. *Totanus solitarius*. SOLITARY SANDPIPER.—Abundant during the spring and fall.
59. *Symphemia semipalmata*. WILLET.—Commonly known as *Vive Vire*. A common and well-known resident; breeds abundantly.
60. *Bartramia longicauda*. BARTRAMIAN SANDPIPER.—Universally known as *Papabot*. Abundant during the spring and fall.
61. *Tryngites subruficollis*. BUFF-BREASTED SANDPIPER.—Commonly known as *Churook*, and Robin Snipe. Abundant during spring and fall migration.
62. *Actitis macularia*. SPOTTED SANDPIPER.—Abundant during the spring and fall; a very few winter on the coast.
63. *Numenius longirostris*. LONG-BILLED CURLEW.—Commonly known as *Corbijo*. An abundant resident, breeding along the coast.

64. *Numenius hudsonicus*. HUDSONIAN CURLEW.—An abundant resident. Does not breed.

65. *Numenius borealis*. ESKIMO CURLEW.—A common winter resident along the coast.

66. *Squatarola squatarola*. BLACK-BELLIED PLOVER.—Commonly known as *Gros yeux*, *Ventre noir*, and Bull Head. An abundant resident. Does not breed.

67. *Charadrius dominicus*. AMERICAN GOLDEN PLOVER.—Commonly known as *Gros tete*. A common bird during migration. A few winter along the coast.

68. *Ægialitis meloda circumcincta*. BELTED PIPING PLOVER.—Not an uncommon winter resident.

69. *Ægialitis vocifera*. KILLDEER.—An abundant resident; breeds commonly.

70. *Ægialitis semipalmata*. SEMIPALMATED PLOVER.—A rare winter visitant.

71. *Ægialitis nivosa*. SNOWY PLOVER.—A rare winter visitant.

72. *Ægialitis wilsonia*. WILSON'S PLOVER.—An abundant resident, breeding all along the coast. Commonly known as *Collier*.

73. *Arenaria interpres*. TURNSTONE.—Commonly known as Pigeon. An abundant resident, on the coast.

NESTING OF THE PARULA WARBLER (*COM- PSOTHLYPIS AMERICANA*) IN CAPE MAY COUNTY, NEW JERSEY.¹

BY MARK L. C. WILDE.

PERHAPS no other portion of the State of New Jersey is better adapted as a breeding ground for the Parula Warbler than Cape May County. Quite a number of its streams, including Dennis Creek and tributaries, are dammed off to supply power to the various saw and grist mills, thereby forming mill-ponds, and in some cases these streams spread over a considerable area, owing to the extreme shallowness of the valleys.

¹ Read before the Delaware Valley Ornithological Club of Philadelphia.

I desire to speak more particularly of the ponds, and large shallow stretches of water above the mill-dams, together with the small winding streams which supply them, as these are the localities where the long-bearded lichen or 'beard-moss' (*Usnea barbata*), in which the Parula Warblers almost invariably construct their nests, grows most abundantly.

The mill-ponds formed by the streams north of the Dennis Creek are wholly or partly hemmed in by dense thickets of various kinds of bushes, beyond which, almost as far as the eye can see, the higher dry land or as I might better say the hot 'Jersey Sand-Barrens,' are overgrown with scrub-oaks (*Quercus ilicifolia*), interspersed with a few tall pines (*Pinus rigida*), while other portions are cleared for farming purposes.

In the upper portion of the northern mill-ponds the numerous small cedar-bushes, which when fullgrown may only be termed scrub-cedars (*Chamaecyparis thyoides*), together with other trees and bushes, all of which are often matted together in small clumps or islands, are nearly all draped with festoons of 'beard-moss.' In addition to this, dead stumps of the cleared off timber still project out of the water, and many of their decayed tops being covered with smaller vegetation and 'beard-moss,' also help to beautify the mill-ponds. Various ericaceous bushes and open sphagnum bogs are scattered throughout this region, and these bogs often continue to the very sources of the small streams which supply the mill-ponds with water.

The Parula Warblers breed undisturbed in these secluded spots, where the Kingbirds may be seen with outstretched wings, swaying on the topmost branches of the cedars, and where insects and Hummingbirds (*Trochilus colubris*) may be heard, as they swiftly wing their way across the ponds. Uninterested persons seldom if ever intrude, probably on account of the 'out-of-the-way' localities, and the difficulties connected with penetrating the dense bushes which surround their breeding grounds.

The trees here in the upper portion of the mill-ponds increase in size, gradually culminating into dense red-water cedar-swamps, as they follow the small streams to their sources.

Viewed from a short distance these saturated cedar-swamps present the appearance of a solid mass of dark green, and when

in the interior, the eye can penetrate but a few yards among the thickly clustered trunks. The Parula Warblers do not breed within these dense, dark, cedar-swamps, but may occasionally be found breeding on their borders.

Between that portion of the ponds where the cedars are more open, and the dense cedar-swamps above, the small channels are so choked up with bushes, and tangled, twisted, moss-covered branches of the scrub-cedars, that progress in a flat-bottom boat (which is the safest way to travel through this region, on account of the uncertainty of the bogs) is very slow and laborious.

A few remarks on the streams, and southern tributaries of Dennis Creek, would probably be of interest.

The mill-dam on Sluice Creek, the southeastern branch of Dennis Creek, forms a lake half a mile in length, and marks the north-western extremity of the 'Timber and Beaver Swamp,' which stretches away nearly three miles to the east. The extensions of this creek south of the lake referred to, are gradually drained of their water by the swamps, which as I have already intimated, have been formed by the flatness of the land.

These swamps are bordered with tall bushes, beyond which are woods of chestnut, oak, beech, laurel, and pitch-pine, interspersed with a large quantity of holly, while the swamps themselves outside of the main channels, are overgrown with sassafras, maple, cedar, gum, magnolia, and various kinds of bushes, including bush-huckleberry, cranberry, alder and cedar, the whole being interwoven with thorny green-briars. The crooked and twisted branches of these trees and bushes are nearly all draped with beard-moss. Numerous open sphagnum and cranberry bogs are also scattered throughout this region.

Among the beautiful moss-covered trees and bushes already described, the Parula Warblers congregate in large numbers, to make their summer home. They arrive from the south apparently already paired, about the first of May, and by the second week have commenced nest building.

Nests can be found from the border to the middle of the mill-ponds and swamps, and may be looked for anywhere from under the tip of an outstretched or drooping branch to against the tree trunk, or in smaller bushes, and from one foot above the water to

twenty feet high. Generally, however, on account of the beard-moss growing more abundantly on the lower branches of the trees, under eight feet may be considered the average height. From the data of thirty-three nests the summary is as follows:—

1	foot	high,	1	nest.
2	feet	high,	2	nests.
2½	"	"	6	"
3	"	"	7	"
3½	"	"	2	"
4	"	"	1	nest.
4½	"	"	2	nests.
6	"	"	2	"
7	"	"	3	"
8	"	"	3	"
13	"	"	1	nest.
15	"	"	2	nests.
20	"	"	1	nest.

Parula Warblers seem to colonize naturally to a larger extent than any of our other Warblers, probably on account of the beard-moss (of and in which, as I have said before, this species almost exclusively builds its nests), growing more heavily on certain patches of trees and bushes, than on others.

Having selected a suitable spot the female alone assumes the task of nest building, while her mate leisurely feeds among the tangled branches, and occasionally clinging to a twig head downward in Chickadee fashion, he reaches here and there for lurking insects, and flying a short distance, pauses for a moment to emit his song.

The nest is invariably placed in a hanging position. The female usually selects a tree in which the beard-moss grows quite thickly, and here within the tufts, she loops and weaves together the inside hanging particles of moss, forming a beautiful nest, much resembling the style of the Baltimore Orioles. The birds are careful that the moss shall be left hanging in its natural way, from the bottom and sides of the nest, and often so conceal it, that it can only be found by a close and careful observer. Into the structure the bird then carries thread-like pieces of beard-moss, collected from some nearby tree. This moss is used exclusively

by some Parulas in lining their nests, while others add a few horse-hairs and a yellow down which is taken from the stems of swamp ferns. The nest is very compact and closely woven, occasionally having a few pine-needles stuck into it around the outside, probably to help support and pin it to the hanging particles of moss.

The entrance, which is always on a level with the top of the bowl, is made through the moss on the side, very often directly under the limb where the moss is parted. The walls of the bowl, being at least a half an inch in thickness, form a platform which is often flattened out resembling a small mat, on which the bird rests when entering or leaving the nest. Some nests have two or more entrances, either left as peep windows for escape, or unintentionally caused by the thinness of the moss above the bowl.

I have examined a few nests where the entrance was made from the top, the nest having been suspended either between two twigs or between the trunk of a tree and an adjoining tuft, but such cases as these are rare, and may be considered departures from their regular style of building. From over a hundred nests of this species, found during the past three years, nearly all were partly or entirely roofed over, with the entrances from the sides as previously described.

One nest collected during May, 1893, was suspended from a two inch limb, containing little or no moss, outside of that of which the nest was constructed, but this I do not consider a typical nest.

The inside measurements of the nests vary, ranging from about one and a half to two inches both in depth and diameter.

I have watched Parula Warblers enter their nests, and have seen both sitting on their eggs and young, by keeping perfectly still and quiet in a row-boat, at a distance of not more than from three to four feet.

With very few exceptions, the number of eggs laid is four, which show remarkable variation in size and shape. They have a white ground color, and are more heavily dotted with reddish brown and lilac at the larger ends, often forming a ring round them.

Full clutches of fresh eggs may be found on the 20th of May, and I found one nest containing young just hatched on the 4th of June, 1893.

Although I have seen a number of small snakes, throughout these ponds and swamps, drop off the lower branches of the trees and bushes at my approach, I have never found any nests of the Parula Warblers which had been disturbed by them.

On May 21, 1894, after a heavy wind and rain storm which lasted some four or five days, the swamps in northern Cape May County were completely flooded. I found one Parula's nest during this storm which had been washed out, and probably many others on the lower branches were destroyed. The land bordering one of these swamps northwest of Dennisville, which on May 18 seemed very dry, was also flooded for some distance, and many Black and White Warblers, a nest of which was found here on that date, were seen feeding among the trees, and no doubt not only their nests, but many others of the ground nesting species were destroyed.



DESCRIPTION OF A NEW TOWHEE FROM CALIFORNIA.

BY JOSEPH GRINNELL.

Pipilo clementæ, new species. SAN CLEMENTE TOWHEE.

Specific characters.—Differs from *P. maculatus megalonyx* in its larger size, and in having the dark upper and anterior parts in both sexes of a much lighter shade.

Type, ♂ ad., No. 2290, Coll. J. G., Smuggler's Cove, San Clemente Island, California, Mar. 31, 1897.

Head and neck all around sooty seal brown, purest and darkest on the throat. Upper parts, including wings and tail, sooty, 'washed' with olive-gray. Rump lighter. Upper tail-coverts finely barred with dusky. Distribution of white markings, and rest of plumage, as in ♂ *P. m. megalonyx*.

Type, ♀ ad., No. 2291, Coll. J. G., Smuggler's Cove, San Clemente Island, California, Mar. 31, 1897.

Much lighter than ♀ *P. m. megalonyx*. Head and neck all around, and upper parts, broccoli brown. Wings and tail darker. Rump gray. These colors are not pure and continuous, but the feathers have darker centres with light edgings. Plumage otherwise as in *P. m. megalonyx*.

Habitat. — San Clemente Island, California.

The male of *P. clemente* thus closely resembles the female of *P. m. megalonyx* in the tone of the upper parts, and the female of the insular form is still lighter. From the accompanying table of measurements the difference in size, especially in the proportions of the bill, is evident.

During my six days' visit on San Clemente Island, from March 28 to April 3, the past spring, I did not see more than four others of these Towhees besides the six specimens secured. So that they can not by any means be numerous. However, my observations were confined to the south end of the island, so possibly they are more abundant toward the north end. They were shy, and usually remained closely hidden in the clumps of wild cherry bushes which lined the beds of the ravines. The reproductive organs of the single female taken, showed that oviposition had already taken place.

The notes of the San Clemente Towhee are quite unlike those of the mainland form. The (*tow*)-*hee* was more flimsy, and not so loud. The Catbird call-note which is so characteristic of *P. m. megalonyx*, appeared to be unknown to the island bird, as I did not once hear it.

I have seen no Towhees from the other Southern Californian islands, so that more material may relegate *Pipilo clemente* to subspecific rank, but reasoning from analogy, I think not.

MEASUREMENTS IN INCHES OF A FEMALE *Pipilo clemente* FROM SAN CLEMENTE ISLAND, CALIFORNIA.

No. Coll. J. G.	Date.	Length.	Wing.	Tail.	Tarsus.	Hind Claw.	Bill from Nostril.	Exposed Culmen.	Depth of Bill at Nostril.
2291	Mar. 31, '97.	8.37	3.12	3.90	1.06	.51	.41	.54.	.34

MEASUREMENTS IN INCHES OF FIVE MALES OF *Pipilo clemente* FROM
SAN CLEMENTE ISLAND, CALIFORNIA.

No. Coll. J. G.	Date.	Length.	Wing.	Tail.	Tarsus.	Hind Claw.	Bill from Nostril.	Exposed Culmen.	Depth of Bill at Nostril.
2266	Mar. 30, '97.	8.75	3.50	4.31	1.04	.64	.42	.54	.55
2267	Mar. 30, '97.	8.75	3.37	4.26	1.11	.51	.41	.53	.52
2290	Mar. 31, '97.	8.62	3.37	4.20	1.09	.52	.44	.55	.55
2312	April 1, '97.	8.62	3.50	4.25	1.12	.48	.43	(.56)	—
2319	April 2, '97.	8.50	3.56	4.30	1.09	.53	.42	.57	.53
Average		8.65	3.46	4.26	1.09	.53	.42	.55	.54

MEASUREMENTS IN INCHES OF SIX MALES OF *Pipilo maculatus megalonyx*
FROM PASADENA, CALIFORNIA.

No. Coll. J. G.	Date.	Length.	Wing.	Tail.	Tarsus.	Hind Claw.	Bill from Nostril.	Exposed Culmen.	Depth of Bill at Nostril.
643	Feb. 8, '96.	8.12	3.37	4.09	1.07	.52	.38	.52	.32
660	Feb. 22, '96.	8.50	3.50	4.18	1.05	.57	.39	.53	.33
665	Feb. 26, '96.	8.50	3.25	4.03	1.06	.52	.42	.55	.31
728	Mar. 19, '96.	8.00	3.37	4.00	1.06	.51	.41	.53	.32
2051	Feb. 6, '97.	8.37	3.37	3.90	1.03	.47	.37	.49	.33
2052	Feb. 6, '97.	8.37	3.37	4.18	1.04	.53	.38	.51	.33
Average		8.31	3.37	4.06	1.05	.52	.39	.52	.32

AN ADDITION TO NORTH AMERICAN PETRELS.

BY WILLIAM PALMER.

THE great storm that occurred on the coast of the South Atlantic States on August 26-27, 1893, resulted in a great destruction of seabird life, besides driving many individuals far inland. At such times specimens are likely to be obtained that are rare or unusual in certain localities, and occasionally one that is considerably out of its normal range; this storm was no exception in this respect.¹

Two Petrels were received by me at that time, both having been taken within the limits of the city of Washington. Both specimens prove to be typical of Knudsen's Petrel, *Oceanodroma cryptoleucura* Ridgway, probably a Pacific Ocean species. This bird was described in 1882² from some specimens which had been in the National Museum collection since 1866. These were collected on or about some of the Hawaiian Islands (Waimea and Kanai) by Valdemar Knudsen, sometime previous to that year, no dates being on the labels. Mr. C. H. Townsend of the U. S. F. C. S. 'Albatross' collected four specimens near Wenman Island, of the Galapagos Group, on April 4, 1891, which are also in the National Collection. There are a number of specimens in the British Museum from several localities in the Hawaiian Islands, from Australia, and from various islands in the eastern Atlantic, — Funchal, Madeira; Desertas Islands, Porto Santo Island, St. Helena and Great Salvage Island. A specimen was also picked up December 5, 1895, on the coast of Kent, England. Thus a fairly cosmopolitan range seems imminent for the bird. The species bears a very great general resemblance to Leach's Petrel but differs in so many features as to be clearly distinguishable. In the following descriptions I have italicized these differences.

Oceanodroma leucorhoa. LEACH'S PETREL.

General color, sooty brown, nearly unicolor, but slightly paler beneath. Tail *strongly* forking; upper tail-coverts *dingy* white, some (under)

¹ Auk, 1893, 361; 1894, 85, 181.² Proc. U. S. Nat. Mus., IV, 1882, 337.

feathers almost entirely brown; all *irregularly* tipped with the dark body color, and *all* having *brown shafts*. Rectrices entirely brown, paler at base, and sometimes having (except central pair) the base white for a short distance. Outer toes slightly shorter than the middle. Toe nails long and narrowish.

***Oceanodroma cryptoleucura*. KNUDSEN'S PETREL.**

Similar to *O. leucorhoa* in size, color and marking, but with *slightly* forking tail. Upper tail-coverts *pure* white, the longer feathers *broadly* and *somewhat evenly* tipped with the dark body color; all having the shafts *white*. Rectrices (except central pair) *white* at base for *fully an inch* and *extending further* along outer webs of the outer pair. Outer toes *decidedly* shorter than the middle. Toe-nails *shorter* and *broad*er.

Measurements, from Ridgway's Manual.

	Wing.	Tail.	Forking.	Tarsi.
<i>O. leucorhoa</i>	6.00-6.30	3.50-4.00	.80-.90	.90-.95
<i>O. cryptoleucura</i>	5.80-6.30	3.00-3.15	.20-.30	.85-.90

Measurements of the Washington Specimens.

3233 ♀ W. P. Coll.	6.20	2.94	.12	.90
3234 ♀ "	6.00	2.85	.15	.90

Length of No. 3234, 7.75; extent, 19.10.

The greater amount of white at the base of the tail-feathers, the broad dark tips of the upper tail-coverts, and the slightly forked tail will readily serve to identify this species. The Hawaiian Islands, Galapagos and Washington birds agree well in these characters.

Both my specimens are molting and seem to be adults and are both females. In both the bulk of the feathers have been changed except on the neck and throat. The wings in both have been entirely renewed, the outer pair of feathers in each showing remains of the sheaths at their bases. In one, No. 3234, the tail has been entirely renewed, no remains of the sheaths showing; while in the other but nine feathers are full grown, the next to the outer pairs being rather more than two thirds their full length, and the fourth on the right side is nearly half grown. Some of the upper tail-coverts lack their full growth on both.

The capture of one of these specimens came about in a rather peculiar way for a Petrel. The first was received from a boy who

had shot it on August 28, while it was flying over the Anacostia River, near the Navy Yard Bridge, with several others. The other I received the next day from a friend who had obtained it from a lady who had secured it in the following decidedly novel manner. Their house on Capitol Hill, in Washington, has a gable roof with a small round window facing the east. During the early progress of the storm it was remembered that this window was open and one of the family went upstairs to close it. This bird was found fluttering in the room, evidently having entered through the window. It was secured and efforts made to feed it, but two days later it died, and then came into my hands. On receipt of the first specimen, as a Petrel is decidedly a rare acquisition for Washington, I went to show it to Mr. Ridgway, as we usually do when receiving rarities, but unfortunately he was absent. The almost even tail was noticed, but as new feathers were found and no specimens of *leucorhoa* were available, it was concluded that molting was the cause of the shortness. Upon receiving the second specimen and noting no difference between the two I concluded they were the same. I had no specimens of Leach's then with which to compare, and of course never dreamed that a Sandwich Islands species, unknown to North America, could by any possibility be in my possession. Recently having to compare some Alaskan Petrels I noticed disagreements and accordingly submitted them to the inspection of Mr. Ridgway, who at once recognized his own species and expressed astonishment at seeing it under such circumstances. Thus a most unexpected species is added to our local list and at the same time also to North America. It is truly a wanderer of whose home nothing is known. Other specimens may exist in collections, though, like these, under another name. No. 3234 is now No. 154436 of the U. S. National Museum catalogue.

DESCRIPTION OF A NEW *EMPIDONAX*, WITH NOTES
ON *EMPIDONAX DIFFICILIS*.

BY HARRY C. OBERHOLSER.

THERE are in the collection of the United States Biological Survey five specimens of an *Empidonax*, taken by Mr. Clark P. Streator on the Santa Barbara Islands, California. These prove to be quite distinct from their nearest mainland relative *E. difficilis*, and to constitute thus an interesting and apparently undescribed form, which, in view of its island habitat, may very appropriately be designated

Empidonax insulicola, sp. nov.

CHARS. SP. — *E. difficilis similis, sed supra obscurior et brunnescentior; infra pallidior, pectore vix ochraceo-brunneo lavato.*

Al., 64.5–69.5 (68.2) mm.; caud., 59.5–64 (61.4) mm.; culm. exp., 11–13 (11.8) mm.; tars., 17–18 (17.7) mm.

Habitat. — Insulae Santa Barbara, California.

Description. — *Type*, male adult, No. 140078, U. S. Nat. Mus., Biological Survey Collection; Santa Rosa Island, California, July 3, 1892; C. P. Streator. Above olive brown, slightly paler and more greenish on rump, darker on head. Wings fuscous, the lesser coverts edged with the color of the back; median and greater coverts tipped with brownish white, this forming two conspicuous wing-bands; secondaries and tertials margined externally with the same color. Tail fuscous, the outer webs of the feathers very narrowly edged with the color of the back. Lores and orbital ring dull yellowish white, the former somewhat mixed with olive; sides of head and neck like the back, but rather lighter, and shading gradually into the color of under parts; chin and throat dull grayish white, faintly washed with yellow; remainder of lower surface straw yellow, slightly paler on jugulum and crissum, inconspicuously tinged across breast and on sides and flanks with olive brown; bend of wing below buff; axillars and inferior wing-coverts straw yellow.

From *Empidonax cineritius*, with typical specimens of which it has been compared, this new species differs in being darker, less ashy, and somewhat more olivaceous above — particularly on the head — and rather deeper, more continuously yellow below. From *E. difficilis* it may be readily distinguished by its darker, browner upper parts, especially the head, and by the usually much paler

colors of the under surface, this most noticeable anteriorly, the jugulum and breast having little of the brownish ochraceous suffusion so apparent in most specimens of *difficilis*. The sides of neck and head are somewhat grayer, the throat is usually distinctly whitish, and the wing-bands appear to be rather more purely white. It will thus be seen that while in some characters *Empidonax insulicola* is to a certain extent intermediate between *difficilis* and *cineritius*, yet in the olive brown color above it departs equally from both, though not in the direction of either.

The characters above ascribed to *insulicola* are reasonably uniform in the series of five specimens examined. One bird, however, from Santa Catalina Island, has the throat rather more clearly white, and the upper parts a little lighter and more olivaceous, but these differences are apparently not material.

So far as it has been possible to ascertain, the only previous record of any representative of the genus *Empidonax* from the Santa Barbara Islands is by Mr. Eli W. Blake, Jr., who gives *Empidonax difficilis* as common on Santa Cruz Island.¹ Mr. Blake's *E. difficilis* is, of course, undoubtedly the *E. insulicola* of the present paper.

For comparison in this connection there have been brought together some 85 specimens of *Empidonax difficilis*, many of them taken in the breeding season, this series representing very fully the North American range of the species. Among these there are very few indeed which can not be distinguished from *Empidonax insulicola* even without comparison, being both lighter and more olivaceous on the upper surface, and more deeply yellow beneath. A considerable range of variation is, however, exhibited, which is not satisfactorily attributable to geographical causes. A specimen from Comox, B. C., and another from Parley's Park, Utah, are nearly as dark above as *insulicola*, but are much more yellowish olivaceous, and are, moreover, easily distinguished by the very deep brownish suffusion on the breast.

The palest birds examined are from the southwestern border of the United States, but with these occur, during the breeding season and often in the same localities, some of the darkest birds in the

¹ Auk, IV, 1887, 329.

whole series, together with others which are apparently intermediates. Whether or not this occurrence of paler birds in the southwestern United States shows an inclination of *difficilis* toward intergradation with *cineritius* is not possible certainly to determine from the material at present available, but the greater frequency of such examples in southern California seems at least to indicate that such may be the case. One bird from the Santa Catalina Mts., Pinal County, Arizona (U. S. N. M. No. 117235), is very pale throughout, and differs from *cineritius* chiefly in the quite continuously yellow under parts. A specimen from Napa Valley, California (U. S. N. M. No. 12880), is very similar to the preceding, but is browner and slightly darker above, less extensively yellow below, and rather darker across the breast. Whether or not these two specimens are to be called *cineritius* seems somewhat doubtful. I very much hesitate to record them as such, though they certainly do not represent *difficilis*, unless they may be considered abnormally faded summer birds.

The young of *Empidonax difficilis* appears to be, as a rule, very brown above and light yellowish or buffy below (not dull white as mentioned by Mr. Ridgway¹), although two immature specimens from Sitka, Alaska, are as bright olive above and as deep yellow below as almost any of the adult examples.

MEASUREMENTS OF SPECIMENS OF *Empidonax insulicola*.

U. S. N. M. No. Biol. Surv. Coll.	Sex and Age.	Locality.	Date.	Wing.	Tail.	Exposed Culmen.	Culmen from Nostril.	Tarsus.	Middle Toe with Claw.
140076	♂ ad.	Santa Catalina I., Calif.	Apr. 15, 1892.	69.5	61	11	9	18	12
140077	♂ ad.	Santa Rosa I., Calif.	July 3, 1892.	64.5	60	13	9	18	12.5
140078	♂ ad.	" " "	" " "	68	59.5	12	9	17	13
140079	♂ ad.	Santa Cruz I., Calif.	July 13, 1892.	69.5	62.5	12	8.5	18	12.5
140080	♂ ad.	" " "	July 16, 1892.	69.5	64	11	8.5	17.5	13
Average				68.2	61.4	11.8	8.8	17.7	12.6

¹ Manual of North American Birds, 1887, 340.

The present new species is here described through the kindness of Dr. C. Hart Merriam. The writer is also indebted to Dr. J. A. Allen for the use of material in the American Museum of Natural History; to Mr. Robert Ridgway for a similar courtesy with regard to the National collection; and to Mr. William Brewster for the loan of specimens of *Empidonax cineritius*.

A NOTEWORTHY PLUMAGE OBSERVED IN THE
AMERICAN EIDER DRAKE (*SOMATERIA*
DRESSERI).

BY ARTHUR H. NORTON.

IN THE ornithological literature there has appeared from time to time, notes reporting the occurrence of the Pacific Eider drake in Atlantic districts of North America. These reports have been based on Eiders having a black V-shaped figure on the throat, a character commonly used, in connection with a white mantle, as diagnostic of *Somateria v-nigra*.

Such records have been questioned, but apparently a final decision has been deferred. Therefore the belief is entertained that a description of certain specimens of *Somateria dresseri*, taken on the east coast of the United States, is of sufficient interest to warrant its appearance here.

The present data clearly show that the black lancet is a character of frequent occurrence in the young drakes of *S. dresseri*; and there are strong reasons for the belief that it occurs in *S. mollissima borealis*. (See Hagerup, Bds. of Greenland, p. 42.)

During the winter of 1891, I received in the flesh, from Penobscot Bay, Me., a specimen of *S. dresseri*, showing marks of immaturity and having a distinct dusky or black lancet on the throat. It being unique in my experience, I wrote to the collector to send any other specimens having black on the throat, with the

result of receiving another very similar to it, and two adult drakes with black spots on the throat, located at the position of the junction of the two lines which form the lancet or V when present.

On questioning several collectors who live on the Maine coast, I was assured that they had quite often seen such marks in young drakes. Upon the investigation of a large series of these drakes in all stages of plumage, it was found that this feature is of irregular appearance, or, what is perhaps best understood, as an occasional reversion to the characters of a progenitor from which it sprung, in common with *v-nigra*.

It may be stated of the birds having the black figure, that, aside from the presence of that mark, their only departures from the typical adult male of their species, are fully shown to be coincident with stages of immaturity, and that they show nothing that can be considered as of a hybridic nature.

Description of Specimens having Black Marks on Throat.

No. 342, Coll. A. H. N.; Penobscot Bay, Me., winter, 1891. *Somateria dresseri*, male, nearly mature. Differing from adult male in having a few dusky tipped lesser wing-coverts; dusky tips to falcate tertials; frontal processes but .9 mm. wide near apex. Differing from the normal drake in having a dusky V or lancet on the throat, 46 mm. long. This specimen is matched in a normal young drake preserved in the same collection.

No. 439, Coll. A. H. N.; Penobscot Bay, Me., Dec., 1893. *S. dresseri*, male, nearly mature. Similar to the last, except in having more dusky tipped lesser coverts, falcate tertials tipped with a deeper shade of dusky, and frontal process 12 mm. wide. It differs from the normal drake in having a dusky lancet .38 mm. long, on the throat.

No. 340, Coll. A. H. N.; Penobscot Bay, Me., Mar. 20, 1891. *S. dresseri*, male, perfectly mature. No dusky in white of the wing; frontal process 14 mm. wide near apex. Differs from normal drakes in the presence of a dusky spot, 10 mm. long, on the throat.

No. 341, Coll. A. H. N.; Penobscot Bay, Me., winter, 1891. *S. dresseri*, adult male in high (winter) plumage. Frontal processes 14½ mm. wide near apex. Normal except in the presence of a black spot 13 mm. long at the position of the apex of the lancet.

THE SUMMER HOME OF BACHMAN'S WARBLER NO LONGER UNKNOWN.

A COMMON BREEDER IN THE ST. FRANCIS RIVER REGION OF SOUTH-
EASTERN MISSOURI AND NORTHEASTERN ARKANSAS.

BY O. WIDMANN.

THE first intimation of the breeding of Bachman's Warbler in the St. Francis region was had last year, when on May 7 and May 9 singing males were taken (Auk, XIII, 264). At that time no attempt was made to find the nest, though the condition of the testes showed that procreation was either going on, or not far distant.

May 8, 1897, I visited the same place again with the intention of settling the question, if possible. I had no trouble in finding several singing males on the day of my arrival at Kolb Island, Dunklin Co., Mo., on the Paragould and Southeastern railroad, 10 miles east of Paragould, Greene Co., Ark. An old male with deep black throat patch, extending over the breast and almost reaching to the bill, was evidently laboring under a severe spell of excitement and rattled off its little ditty with hardly any pauses at all. When singing he raised his head slightly, opened his bill as wide as he could, shook his wings violently, and his whole frame quivered as if in great ecstasy.

Next morning I visited him again and found him already in song at 5 A. M. In order to become perfectly acquainted with his song, to watch his movements, to see his mate, and possibly to get a clew where to look for the nest, I remained with him nearly the whole day, that is, from 5 to 7 and 8 to 12 A. M. and 3 to 5 P. M., when a heavy rainstorm came up. During these eight hours the bird kept singing nearly all the time at the rate of ten times a minute with the regularity of clockwork, and its sharp, rattling notes reminded me strongly of an alarm-clock. In this regard it recalls one of the performances of *Parula*, whose rattle is of the same length and quality, except that it has a certain rise at the end, by which it is easily distinguished. To my ear the Bachman's song comes nearest to that of the Worm-eating Warbler,

which is fortunately not found in swampland, but the Chipping Sparrow is, and, if the presence of the Bachman's Warbler is not suspected, it is indeed possible to mistake its song for a shrill variety of the Chippy's well-known ditty.

From a ten days' observation of the Bachman's Warbler, May 8 to 17 inclusive, it appears that the bird is very easily overlooked, even in a region where it is common. Its small size, its protective coloration, and its quiet ways combine to make it next to invisible among the heavy foliage of its habitat. The singing period is probably of short duration. Visits to neighboring islands, on both the Missouri and Arkansas sides, revealed the presence of a number of singing males, some with large, others with small and pale, throat patches, the former undoubtedly the older, the latter the younger individuals. On going over the same grounds repeatedly it was noticed that the intensity of their singing mood changed greatly; the old males, that were in a frenzy at the time of my arrival, sobered down, while the pale throats became gradually conspicuous and excited songsters. The time of nest building is probably the period of constant song, but after the eggs are deposited the desire for singing becomes so capricious that the locating and census-taking of the Bachman population is a time-consuming task.

Even if in song it takes minutes to find the bird, though he is generally seated on a dry or thinly-leaved branch at a height of twenty to forty feet from the ground. The reason why it is so difficult to locate him is his habit of pouring out his song into different directions, now to the right, then to the left, even turning entirely around on his perch. When he leaves, he is liable to fly quite a distance, far enough to get lost out of sight for the moment, and in the wildness of his home it takes several minutes to follow him over fallen trees and around impenetrable thickets or pools of water.

In spite of my careful watch for eight hours on the 9th, no clew to the location of the nest was had; the female was seen but twice and for seconds only, when the male darted down upon her, from his perch in the tree to the brambles below, where he caught hold of her, and a short squabble took place. This I took for a sign that she was sitting on eggs, for males often attack their mates

when they leave the nest. As was afterwards found, these attacks occurred far from the nest and could therefore not only give no clew, but were rather misleading. The trees, which the singing bird frequented, were scattered over an area of two acres, and to look over two acres of blackberry brambles among a medley of half-decayed and lately-felled treetops, lying in pools of water, everything dripping wet with dew in the forenoon, and steaming under a broiling sun in the afternoon, is no pleasant job. At first it seemed easy enough to find the nests after locating the males, but this proved to be a mistake.

Day after day I watched some of the males and searched the ground, but in vain. At last, on the morning of the 13th, I saw the female of No. 1, slip down into a bush with a dry grassblade in the bill. Now it was comparatively easy to find the nest, but I was surprised to see it almost ready to receive the eggs and, without doubt, built during my presence on the grounds the last few days. Though many hours had been spent within a few rods of the nest the female was only seen once in the trees which the male frequented, when she was feeding for a few moments, picking small larvæ from the underside of the leaves of *Ostrya*, hanging titmouse-like at the edge of the leaf itself. When in the act of reaching overhead, the gray throat patch appeared with great distinctness. At 9 A. M. on the 14th, she was sitting on the nest and, when I returned an hour later, the first egg had been laid, an entirely white egg which contrasted strongly with the deep black rootlet-lining of the nest. On the next day, the 15th, the second egg was laid, and on the 16th, the third. She was still sitting on the nest in the afternoon and probably began brooding as soon as the third egg was laid. On the forenoon of the 17th, she was still sitting on three eggs, and when I found her again on the nest in the afternoon I considered the set of three eggs complete. At my approach she would not leave the nest until I could almost lay my hand upon her, when she quietly slipped out and disappeared behind the brambles. Only after she had begun brooding was she heard to complain with a very soft, hardly audible *tsip*. The cup of the nest being deep, only the head of the sitting bird can be seen, but her yellow face is quite characteristic. It consists of a yellow frontlet, set off by a narrow

margin of black, a yellow chin and yellow orbital region, in which the dark eye appears in sharp contour.

All three eggs are perfectly white and unspotted, and resemble in color, shape and size those of the Short-billed Marsh Wren. The nest was made of leaves and grass blades, lined with a peculiar black rootlet; it was tied very slightly to a vertical blackberry vine of fresh growth and rested lightly on another, which crossed the former at a nearly right angle. From above it was entirely hidden by branchlets of latest growth, and the hand could not have been inserted without at first cutting several vines, overlying it in different directions. It was two feet from the ground, and to reach the place it was necessary to go through pools of water and over heaps of fallen trees and brush. Such sheltered places are probably chosen to avoid the danger of being trampled down by hogs and cattle, roving in these woods.

There is little danger from egg-collectors; even the natives are seldom seen entering these thickets after the first of May, not so much for fear of thorns and mosquitos or poisonous snakes, but for fear of that greatest curse of these beautiful forests, the ticks, of which they distinguish three kinds: the ordinary wood tick, a comparatively harmless creature, as it is easily picked off before great damage is done; the seed tick, which is already more to be dreaded because of its smaller size; but the worst of all is the jigger or chigger, which is so small as to be hardly seen with the naked eye until it has entered the skin where it causes restless nights and suffering for weeks. This worthy trio forms a society for the protection of birds, more powerful than the best state laws.

There is probably no region in the whole United States so rich in bird life as those islands, not only in the large number of species, but, still more, in the number of individuals. Some of the choicest beauties, such as Prothonotary, Hooded and Kentucky Warblers are not only present, but we hear or see them at almost every step. On a sultry day in May the music from so many throats of summer sojourners is grand and impressive, but it is made still more imposing and perplexing by the musical efforts of twenty and odd different species of transients, and by the noisy fledgelings of the first brood of permanent residents.

To a practiced ear this is a rich harvest, and there is probably no place where the rarer transients are so commonly met with and so often heard to sing as here in this wild gum-boot region of southeast Missouri, where the rivers have no banks, and a rise of a few feet inundates thousands of square miles. Every spring at least one half of the area is under water, but even the highest floods, among them that of 1897, cannot submerge the entire area, though it may lack only a few feet; so large is the expanse of lowland, over which the water has to spread. Kolb Island with its 140 acres had less than 40 acres of dry land at the time of my visit, though the water had already gone down over a foot and a half from its highest stage in April.

The whole St. Francis basin is a network of sloughs, in reality only arms of the St. Francis River; they have very narrow channels free from treegrowth, but overgrown with wild rice (*Zizania miliacea*), different kinds of smartweed, mostly the large southern kind, *Polygonum densiflorum*, and the channel itself is closed up in summer by a dense growth of lotus (*Nelumbium*). This narrow, treeless, channel region merges into the tupelo and taxodium belt, the region of regular yearly overflow of several months' duration, in some years hardly getting dry at all.

Then comes the region of irregular overflow of shorter duration, grown with sweetgum, blackgum, water and willow oaks, ashes, cottonwood, hackberry and, on the higher levels, white and cow oaks, pin oak, red oak, walnuts and hickories, elms and two scores of others, among them the ornamental catalpa and tulip trees and, last but not least, the mulberry. From the ornithologist's standpoint this latter is a valuable constituent of the sylvia. Its fruit begins to ripen early in May and is a great attraction for a number of birds throughout the month. I am inclined to think that the mulberry has something to do with the melodious moods and late loitering of many northbound wanderers, especially the Alice Thrushes, some of which were seen lingering into June.

[Description of the nest and eggs of **Bachman's Warbler** (*Helminthophila bachmanii*).—Mr. Widmann having requested me to describe the nest and eggs referred to in the preceding article I take pleasure in doing so.

Nest a somewhat compressed compact mass composed externally of dried weed- and grass-stalks and dead leaves, many of the latter partially skeletonized; internally composed of rather fine weed- and grass-stalks, lined with black fibres, apparently dead threads of the black pendant lichens (*Ramalina*, species?) which hang in beard-like tufts from button-bushes (*Cephalanthus*) and other shrubs growing in wetter portions of the western bottom-lands. The height of the nest is about $3\frac{1}{2}$ inches; its greatest breadth is about 4 inches, its width in the opposite direction being about 3 inches. The cavity is about $1\frac{1}{2}$ inches deep and $1\frac{1}{2} \times 2$ inches wide.

The eggs are of very regular ovate form, and entirely pure white in color, their measurements being as follows:—No. 1, 0.63×0.48 ; No. 2, 0.64×0.49 ; No. 3, 0.63×0.49 .—ROBERT RIDGWAY.]

PRELIMINARY DESCRIPTIONS OF NEW BIRDS FROM MEXICO AND ARIZONA.

BY FRANK M. CHAPMAN.

THE material on which the following descriptions are based was in part secured by the writer during April, 1897. The relationships of the forms here described will be discussed more fully in a subsequent paper. Thanks are due Dr. C. W. Richmond, Assistant Curator of the Department of Birds, U. S. National Museum, for the loan of specimens of *Coccothraustes* and *Spinus*.

Contopus pertinax pallidiventris, subsp. nov.

Chars. subsp.—Similar to *Contopus pertinax* Cab. but with the under parts, especially the centre of the abdomen, whiter, the upper parts paler, the crown of practically the same color as the back. Wing, 4.48; tail, 3.51; tar., 62; ex. cul., 72.

Type.—Am. Mus. Nat. Hist., No. 29007, ♂ ad., Pima County, Arizona. Collected by W. E. D. Scott, April 22, 1885.

Cabanis's type of *pertinax* was from 'Jalapa,' but it is doubtful if the species breeds in the immediate vicinity of that city.

However, specimens taken at Jalapa agree with others taken at Las Vigas, where they were evidently preparing to breed.

***Coccothraustes vespertinus mexicanus*, subsp. nov.**

Hesperiphona vespertina var. *montana* B. B. & R., N. A. Bds., I, 1875, p. 449 (in part).

Coccothraustes vespertina montana MEARNs, Auk, VII, 1890, p. 246 (in part).

Char. subsp.—Slightly smaller than *Coccothraustes vespertinus montanus*, the male with the yellow frontal band narrower, the female with the under parts more buffy. Wing, 4.50; tail, 2.64; tar., .75; ex. cul., .75 in.

Type.—Am. Mus. Nat. Hist., No. 68480, ♂ ad., Las Vigas, Vera Cruz, Mexico. Alt., 8000 feet. Collected by Mateo Trujillo and Frank M. Chapman, April 24, 1897.

The characters distinguishing this race have in part been commented on by previous writers¹ who, however, deemed them insufficient to warrant its recognition, but on comparing four adult males and four adult females from Mexico with over sixty specimens of *Coccothraustes vespertinus* and *C. v. montanus*, I have no hesitancy in describing the Mexican bird as a new form.

A young male but a few days from the nest, being fed by an adult male, was taken at Las Vigas, April 21, where the bird doubtless breeds, therefore, early in March.

***Spinus pinus macroptera* (Du Bus.).**

"*Carduelis macroptera* DUBUS, Esq. Orn. t. 23;" BONAP. Consp. Av. I, 1850, p. 515.

Char. subsp.—Similar to *spinus pinus* but larger, less heavily streaked below, and with yellow of wings and tail of greater extent. Wing, 3.12; tail, 1.98; tar., .52; ex. cul., .42 in.

Type.—Am. Mus. Nat. Hist., No. 68481, ♂ ad., Las Vigas, Vera Cruz, Mexico. Alt., 8000 feet, collected by Frank M. Chapman, April 20, 1897.

I have not seen Du Bus's description but the description by Bonaparte is sufficient to fix the name of this well-marked race. At the time of my visit males were in full song and evidently mating.

¹ Cf. Baird, Brewer and Ridgway and Mearns, *l. c.*

GENERAL NOTES.

The proper Generic Name of the Loons. — Formerly, and still to a large extent, the Loons were referred to the genus *Colymbus* Linn., 1758. Brisson, however, in 1760, restricted *Colymbus* to the Grebes (cf. Stejneger, Proc. U. S. Nat. Mus. V, 1882, 42), in which sense it is used in the A. O. U. Check-List, where *Urinator* Cuvier, 1799, is employed for the Loons. There is, however, a perfectly tenable earlier name for the Loons in *Gavia* Forster, 1788. Why it has been so long overlooked seems unaccountable, as it is so well defined that its pertinency is beyond question.

Forster (Enchirid. Hist. Nat. 1788, 38) clearly distinguished the Grebes as *Colymbus*, as follows: "*rostrum* subulatum, compressum. *Pedes* lobati, *Tibiae* postice carinato-serratae." Next follows his genus *Uria*, for the Auks, and then *Gavia*, characterized as follows: "*rostrum* subulatum, compressum. *Pedes* palmati, tetradactyli." This in itself is unequivocally diagnostic, and taken in connection with the groups that precede and follow *Gavia*, the conclusion that *Gavia* is here proposed for the Loons is irresistible.

The main synonymy of the genus *Gavia* is as follows:

Colymbus LINN. Syst. Nat. ed. 10, I, 1758, 135 (in part).

Gavia FORSTER, Enchirid. Hist. Nat. 1788, 38.

Urinator CUVIER, Anat. Comp. I, 1799, Tabl. ii.

The Loons of the A. O. U. Check-List will therefore stand as follows:

7. *Gavia imber* (GUNN.).
8. *Gavia adamsii* (GRAY).
9. *Gavia arctica* (LINN.).
10. *Gavia pacifica* (LAWR.).
11. *Gavia lumme* (GUNN.).

It also becomes necessary to change the name of the family from *Urinatoridae* to *GAVIIDÆ*. — J. A. ALLEN, *Am. Mus. Nat. Hist., New York City*.

Uria lomvia, an Addition to the Avifauna Columbiana. — The recent erratic movement of this species extended also to the Potomac at this point, and adds another family to our list. Six specimens, all birds of the season were obtained in this locality, as follows:

- No. 1. Dec. 14, 1896. The first seen at the market.
 " 2. " 20, " Occoquan Creek, Potomac River.
 " 3. " 22, " ♂, Potomac River, between Washington and Alexandria.
 No. 4. Dec. 27, 1896. ♀, Potomac River, between Washington and Alexandria.
 No. 5. Dec. 28, 1896. ♀, Potomac River, between Washington and Alexandria.
 No. 6. Jan. 1, 1897. ♂, Potomac River, between Washington and Alexandria.

All but the second were purchased from various stands on Virginia Ave., N. W., between 9th and 10th Sts., and were found on careful inquiry to have been killed by gunners at points between Washington and Alexandria. The second was killed by a gunner, who gave the bird to George Ayers of Alexandria, Va., who sent it to the Smithsonian Institution, where it now forms No. 154200 of the U. S. N. M. Collection. It was said to have been the only one seen. Nos. 3, 4, and 6 form Nos. 2284, 2286 and 2289 of my collection, and the 5th is in the collection of Mr. William Palmer of this place. — PAUL BARTSCH, *Smithsonian Institution, Washington, D. C.*

Note on *Pagophila alba*.—The attempt made (Pr. U. S. Nat. Mus. V, June, 1882, p. 39) to supersede the established generic name *Pagophila* by the derelict term "*Gavia*" has been temporarily effectual through the adoption of *Gavia* by the A. O. U. on the strength of Dr. Stejneger's misrepresentation, but is not likely to prove more successful than some other blunders that could be named. *Gavia* is traceable back to Pliny, as equivalent to Greek *λάρος*, Lat. *larus*, a gull; and is said to be still an Italian word for 'gull.' Passing by its use by Moehring in 1752 as equivalent to *Larus*, and its employ by Brisson in 1760 as a term in the polynomial designations of various Gulls—for these instances do not affect the nomenclatural point I raise—we come to *Gavia*, Forster, *Enchirid. Nat. Hist.* 1788, p. 38. This is said by Newton (Dict., p. 310) to be a genus of water birds, with no type named; but according to this high authority, Forster's "diagnosis indicates that he meant what is most commonly called *Colymbus*." There are various other later applications of *Gavia* as a generic name of certain Gulls and Plovers, notably one by Boie, *Isis*, 1822, p. 563, to a genus containing *Larus eburneus* and *L. rissa*; but Boie's employ of *Gavia* in this connection is voided by our rules in consequence of Forster's prior use of *Gavia* for a genus of Divers. Waiving other objections to *Gavia* which Mr. Howard Saunders has indicated (Cat. B. Brit. Mus. XXV, 1896, p. 301) and Professor Newton has specified (*l. c.*), we see that Forster's *Gavia*, 1788, debars Boie's *Gavia*, 1822. *Pagophila* Kaup, 1829, is thus in order as the tenable generic name of the Ivory Gull, *P. alba*. It is to be hoped that the next edition of the Check-List will correct the error into which the A. O. U. has been misled by relying upon unreliable evidence. — ELLIOTT COUES, *Washington, D. C.*

Arrival of Terns at Penikese Island in 1897.—Penikese Island, May 6, 1897. Up to last night no Terns had been noted in this locality. Early this morning they appeared in quite a considerable body. They all departed the next day, returning in a day or two; their numbers being greatly augmented. The first egg was observed on the afternoon of May 23. No more were discovered until the 25th, when four were noted. On May 29, 30, 31, quite a number of nests with one egg each, several with

two eggs each, and four with three eggs each were observed. The above is the earliest date of arrival of the birds of which I have any knowledge. This island has now been posted, and the Terns are likely to have better protection than ever before. — GEORGE H. MACKAY, *Nantucket, Mass.*

Onychoprion, not Haliplana. — As I have remarked before (Pr. Philada. Acad., 1862, p. 555), "Wagler's *Onychoprion* is based upon the *S[terna]*, *serrata* of Forster; while his *Haliplana* has as type *S. fuliginosa*, Gm. The former of these species . . . is in all probability identical with *fuliginosa*, and is at all events strictly congeneric with it. This being the case, perhaps *Onychoprion* ought to be employed for the genus; as it is instituted several pages in advance of *Haliplana*" in Isis, 1832. I now find the case to be exactly as I surmised 35 years ago. The synonymy of the Sooty Tern section of *Sterna*, so far as Wagler is concerned, is: *Onychoprion*, Isis, 1832, p. 277, type *serrata* Forst., = *fuliginosa*; *Planetis*, Isis, 1832, p. 1222, type *guttata* Forst., = *fuliginosa*; *Haliplana*, Isis, 1832, p. 1224, type *fuliginosa*. All three names are thus based on one species, and all bear the same ostensible date; but of actual priority of *Onychoprion* there is no question, as reference to the dates of parts of Isis for 1832 shows.

The specific name of another bird of the subgenus *Onychoprion* must be changed from the misspelling "*anæthetus*" of our Check-List, for we have absurdly adopted a mere misprint, besides failing to observe grammatical gender. Our rules allow us the privilege of correcting a typographical error, as dropping of the *s* in this case certainly is; and though *Sterna* was once of common gender, it is feminine now, both by analogy of form and by common consent. The full form of the word would be *anæstheticu*, as in my 'Key,' etc.; but lest I be accused of wanton 'purism,' I will compound that felony by accepting *anæstheta*, (Gr. ἀναισθητός, stolid, unfeeling, apathetic).

Our mistake regarding *Onychoprion* is counterbalanced by a reverse error. Having ignored actual priority in this case, we turn around and bestow a fictitious priority upon *Sterna tschegrava* Lepechin, to avoid using the established name *S. caspia*. These two names are ostensibly of same date, 1770, in same part of same volume of the publication in which they both appear; and there is no evidence that the 82 pages concerned (p. 500 to p. 582) make a difference of a day or an hour in actual date of publication. Why then drop *caspia* for *tschegrava*, except to show how great we can be in little things? I shall continue to use *caspia*; and so will all other ornithologists, when the flurry and hurry and worry of our Check-List is over. — ELLIOTT COUES, *Washington, D. C.*

Remarks on certain Procellariidæ. — On reviewing these objects of my early solicitude (1864-66), chiefly in the light of Salvin's recent admirable Monograph, I observe that a number of classificatory and nomenclatural changes are required in the A. O. U. List, besides those which the Committee adopted in 'The Auk' of last January, or then deferred.

1. We have done well in separating *Diomedeidæ*¹ as a family apart from *Procellariidæ*, and also in declining to raise *Oceanitinæ* to full family rank. While we may not follow Mr. Salvin to the length of recognizing *Puffinidæ* as a family (though he certainly gives some good characters, cranial and other), it is quite true that we must adopt several more subfamilies than now appear on our List:

- a. *FULMARINÆ*. Equivalent to the *Fulmaræ* and *Prionæ* of my early papers; including among our genera *Daption*. I failed to recognize the real character of this group, which is the lamel-lirostral bill, seen at its best in the exotic genus *Prion*. The lamellæ are obsolete or hardly evident in the true Fulmars, but easily seen in *Daption*, a form which connects the extremes perfectly.
- b. *PUFFININÆ*. Equivalent to the *Puffinæ* and *Cestrelatæ* of my early papers; which two groups come sufficiently near together. None of these birds have any lamellation of the bill, but all share basipterygoids with the *Fulmarinæ*.
- c. *PROCELLARIINÆ*. Restricted to the short-legged "Stormy" Petrels.
- d. *OCEANITINÆ*. The remarkably grallatorial "Stormy" Petrels, as they stand at present in the A. O. U. List.

2. *Priocella* and *Priofinus* are perfectly good genera, the former of *Fulmarinæ*, the latter of *Puffininae*. They have stood as such in the 'Key' since 1884, and should never have been degraded. *Priocella*, in fact, is so different from *Fulmarus*, with which the A. O. U. combines it, that Mr. Salvin puts it in the other subfamily.

3. *Cymodroma* should not have replaced *Fregetta*—a word which is sufficiently different from *Fregata*, according to our orthographic (or rather cacographic) rules. Our canon on the subject does not permit us to rule out names which are differently spelled, if more than grammatical gender of terminal inflection be involved: witness *Leptotila*, etc.

4. *Puffinus stricklandi*. I think it very likely that, as held by Mr. Salvin, all the large Sooty Shearwaters must be united under *P. griseus*. But if we propose to separate the Atlantic bird from that of the Pacific, its name is *P. fuliginosus*. For, though there are several cases of prior use of the term *Procellaria fuliginosa*, for various birds of different genera, I find no use of *Puffinus fuliginosus* for any species prior to Strickland, 1832; and certainly preoccupation of a specific name in one genus never debars its use in another genus. The earliest use of *Procellaria fuliginosa* appears to be by Gmelin, 1788, for the Sooty Petrel of Latham, now *Oceanodroma fuliginosa*; but this in no wise affects the standing of *Puffinus fuliginosus*. — ELLIOTT COUES, *Washington, D. C.*

¹ Still more distinct from other *Tubinares* are the exotic *Pelecanoididæ*, the full family rank of which I indicated in Pr. Phila. Acad., 1868, p. 54; and I should not have degraded this group in later writings.

Rectrices of Cormorants.—*Phalacrocorax carbo* has 14 rectrices, but none of our other species of this genus is known to have more than 12. This is the primary basis of the analysis which has stood in the 'Key' since 1872. I was therefore surprised to find Ridgway's 'Manual' crediting both *P. penicillatus* and *P. perspicillatus* with 14. On conferring with him about it, *P. penicillatus* was found to have no more than 12, as I had always supposed. The only statement regarding *P. perspicillatus* that I know of—being Brandt's, as first published in Pr. U. S. Nat. Mus., XII, 1889, p. 86—gives the tail as "e pennis 12 composita."—ELLIOTT COUES, *Washington, D. C.*

Concordance of Merganser americanus.—I am sorry to point out an extraordinary oversight in the 2d ed. of the A. O. U. Check-List, where the concordance of the common American Merganser is given as "B—, C—, R—, C—," as if neither Prof. Baird, nor Mr. Ridgway, nor myself had given this bird in our respective Lists. The dashes should be replaced by figures, as B 611, C 521, R 636, C 743, which so stand, correctly, in the 1st ed. of the A. O. U. List.—ELLIOTT COUES, *Washington, D. C.*

The Scarlet Ibis in Colorado.—On page 60 of my 'Birds of Colorado' it is stated that but four instances are known of the occurrence in the United States of the Scarlet Ibis (*Guara rubra*). To this short list is now to be added a fifth and most remarkable record. A flock of six of these magnificent birds was seen April 23, 1897 on the Arkansas River near Rocky Ford, Colorado. Three specimens were secured, a male and two females and have been mounted by a local taxidermist.

In this connection it will be well to call attention to a mis-print under the notes on this species in 'Birds of Colorado.' The specimen noted from "Texas" should be "New Mexico," the reference being to the record of Dr. Coues of a fragment of one seen at Los Pinos. Dr. Coues has recently informed the present writer that there can be no question of the correctness of this record.—W. W. COOKE, *Fort Collins, Colorado.*

Little Blue Heron in New Hampshire.—I have recently had a Little Blue Heron (*Ardea carulea*), in perfect plumage, with maroon neck, brought in, killed in Amherst, New Hampshire, April 28, (1897). Is it not rare to take a bird of this species in New Hampshire?—JAS. P. MELZER, *Milford, N. H.*

Bob-white in Northwestern New York.—Several Quail (*Colinus virginianus*) have been reported from different parts of the Counties of Onondaga and Lewis the past winter. It is very seldom they are seen in this locality. The winter has not been so severe as usual.—W. S. JOHNSON, *Boonville, N. Y.*

Additional Records of the Passenger Pigeon (*Ectopistes migratorius*).—Most of the notes on the Passenger Pigeon recorded in the past year

have referred to single birds or pairs. It is with much pleasure that I can now call attention to a flock of some fifty, observed in southern Missouri. I am not only greatly indebted to Mr. Chas. U. Holden, Jr., for this interesting information, but for the present of a beautiful pair which he sent me in the flesh, he having shot them as they flew rapidly overhead. Mr. Holden was, at the time, hunting Quail in Altie, Oregon Co., Missouri. The residents of this hamlet had not seen any Pigeons there before in some years.

Simon Pokagon, Chief of the remaining Pottawattamie tribe, and probably the best posted man on the Wild Pigeon in Michigan, writes me under date of Oct. 16, 1896: "I am creditably informed that there was a small nesting of Pigeons last spring not far from the headwaters of the Au Sable River in Michigan." Mr. Chase S. Osborn, State Game and Fish Warden of Michigan, under date, Sault Ste. Marie, March 2, 1897, writes: "Passenger Pigeons are now very rare indeed in Michigan, but some have been seen in the eastern parts of Chippewa County, in the Upper Peninsula, every year. As many as a dozen or more were seen in this section in one flock last year, and I have reason to believe that they breed here in a small way. One came into this city last summer and attracted a great deal of attention by flying and circling through the air with the tame Pigeons. I have a bill in the legislature of Michigan closing the season for killing Wild Pigeons for ten years."—RUTHVEN DEANE, *Chicago, Ill.*

Aquila chrysaëtos in Central Minnesota.—It affords me great pleasure to record the capture of this noble bird in this State.

On March 19, 1897, a hunter brought me a beautiful perfectly adult female shot twelve miles east of here. It was quite fat, evidently getting enough to live on during the long winter and deep snow. The stomach contained several ounces of the remains of a common white rabbit. The following are the measurements. Length, 37.00; extent, 86.00; wing, 33.00; tail, 14.50; tarsus and middle toe, 9.00. Weight, 12 lbs. 9 oz.—ALBERT LANO, *Aitkin, Minn.*

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Breeding of the Goshawk in Pennsylvania.—In Dr. Warren's Report of the Birds of Pennsylvania (1890) he records the Goshawk (*Accipiter atricapillus*) as a breeder in the State, mainly on the authority of Mr. Otto Behr of Lopez, Sullivan County. Thanks to the same gentleman, I am able to place on record some additional facts relative to the breeding of the species in Pennsylvania.

On April 30, 1897, Mr. Behr and his brother secured a nest and two eggs of the Goshawk about five miles from Lopez, which they kindly presented to the Academy of Natural Sciences of Philadelphia. Since that time they have discovered another nest with eggs near the same place.

Mr. Behr states in addition: "We have found eight nests of the Goshawk in the last ten years, and all but one of these were built in

beech trees; . . . most of the nests contained two young each. We found three nests in different years that contained only one bird each, but never found the eggs until this year."

During the past winter Goshawks have occurred in unusual numbers in southern Pennsylvania and New Jersey, where they are generally very rare. — WITMER STONE, *Academy of Natural Sciences, Philadelphia, Pa.*

Peculiar Nest of the Great Horned Owl. — While returning from a short walk in the woods during a recent afternoon (March 14), I found a nest of *Bubo virginianus* which was quite remarkable. I had left the woodland and was crossing a meadow; in this there stood perhaps a half dozen elms and maples, none of them over six or eight inches in diameter at the base, the nearest timberland being three hundred yards away, across a creek. In one of the largest maples there was an old nest of the Crow, only twenty-four feet from the ground; this was occupied by a pair of Owls and one of the parent birds was upon the nest. Repeated heavy blows upon the trunk did not effect her flight; she remained until I shook a sapling which brushed the nest with its tips. Ascending, I found three eggs; in and about the nest were sixteen field mice, a hind leg of a rabbit and a wing of a Downy Woodpecker. There was also in a tree at no great distance the half-eaten body of a Pinnated Grouse. Upon preparation of the eggs I found them addled; incubation, which was equal in all, had advanced for three or five days, when the process had stopped, probably through the eggs becoming chilled. Evidently the bird had continued to set upon the eggs for a week thereafter. — FRANK H. SHOEMAKER, *Hampton, Iowa.*

Disgorgement among Song birds. — Here in the cultivated parts of Southern California, there have been planted very extensively for shade and ornament, the beautiful ever-green pepper-trees. These trees bear a red berry in pendant clusters which mature on the trees throughout the whole year. Large flocks of western Robins and Cedar-birds are attracted into town during the winter months, and feed largely on these pepper-berries. The trees are constantly full of the birds, the habits of which I have had ample opportunity of observing.

The pepper-berries are somewhat smaller than sweet-pea seeds, and of a spherical shape. They are composed of three parts; a thin dry paper-like outer hull; a solid central part, and on the outside of the latter but not touching the external husk, a sticky viscid coating. The central kernel is very hard, and moreover when chewed has a most penetrating disagreeable taste which does not leave the mouth for a long time. When held in the mouth without being touched by the teeth, however, the viscid coat is dissolved in the saliva, and proves to be very sweet and agreeable to the taste. This sweet portion is the nutritive part of the fruit which is sought by the birds.

The birds rapidly swallow these berries in large numbers, including the hulls, which are easily crushed, until the stomach is crammed. They

then repair to some convenient roost, and there remain for ten to fifteen minutes. The juices of the stomach dissolve the sweet coating of the berry and then the kernels, together with the broken husks, are *disgorged*. The ground under a favorite roosting place of the Cedar-birds or Robins is frequently nearly covered with these disgorged kernels and one can see the seeds rattle down as each bird gets rid of two or three at a time.

In my back yard there is a shed under some high eucalyptus trees which appear to be the common rendezvous of several flocks of these birds which feed in the neighborhood. The pattering of the pepper seeds as they fall on the shed-roof is incessant all day long, and the ground is brown with them. I have often watched Robins and Mockingbirds at close range, and I noted that during the process of disgorgement the birds for a moment appeared to be in distress, and after two or three spasmodic coughs and a side-wise jerk of the head, out would come two or three of the kernels. All the birds which eat the pepper-berries have the same habit, and with the Mockingbirds, Western Robins, Cedar-birds and Phainopeplas, the peppers seem to be a very important food-supply. Besides these birds, I have seen the Townsend's Solitaire and Varied Thrush in the act of disgorging.

It is only within the last 12 or 15 years that the pepper-trees have been so abundantly planted in Southern California, and the fact that the birds in so short a time have acquired such an unusual habit, to conform with a new kind of food, seems to me very significant. Possibly this habit of disgorgement has been a common practice wherever the character of the food requires it, but it was new to me. Some one can probably throw more light on the subject.—JOSEPH GRINNELL, *Pasadena, Cal.*

An Unusual Song of the Red-winged Blackbird.—In the first week of May last, I happened on a company of Red-winged Blackbirds, in full play of their courting hour. The males among them were, of course, as tuneful and as actively engaged in the cutting of capers as is their wont, at such times.

But on this occasion it was more interesting to notice that the females, ordinarily so very demure, were showing themselves to be not a whit the less animated by the spirit of the play. And very amusing indeed it was to watch these comedians in sober brown, but in extemporized ruffs, puffs and puckers, pirouette, bow and posture, and thus quite out-do in airs and graces their black-coated gallants. Their shrill whistle, the meantime continually vied with, or replied to, the hoarse challenges of their admirers, while in noisy chattering, and in teasing notes, they were excessively voluble.

Whilst loitering thus entertained my ear had been attracted by repetitions of a strain which came from the dense foliage of a nearby pine. In meter it was the same as the *coke-al-lee-e-e* of the shoulder-strapped members of the company. It was, however, pitched in a higher key, wholly free from gutturals, nor did it contain any sound that could be

represented by any consonant in our alphabet. It was also perfectly smooth in execution and mellow, flute-like in tone. The French *u* if dwelt upon, with inflections and modulations, as uttered by a sweet voiced Parisienne might closely, I imagine, represent the sound. After a while this singer came from his concealment, and, poising on an outer spray, there sang for eight or ten minutes, before flitting off, to be again hidden by the neighboring foliage. — THOMAS PROCTOR, *Brooklyn, N. Y.*

Spring Molt in *Spinus pinus*. — In a paper published in the Proceedings of the Academy of Natural Science, Philadelphia, 1896, p. 141, I stated that so far as I could judge from available material the Pine Finch had no spring molt. A series of specimens taken at West Chester, Chester Co., Pa., in May, 1897, by Dr. T. H. Montgomery shows, however, that quite an extensive renewal of the feathers occurs at this season. It of course does not extend to the remiges and rectrices. As my former statement was liable to be misleading, I take this opportunity to correct it. — WITMER STONE, *Academy of Natural Sciences, Philadelphia, Pa.*

An Earlier Name for *Ammodramus leconteii*. — *Fringilla caudacuta* LATHAM (Index Orn. I, 1790, 459) is usually cited as a doubtful synonym of *F. passerina* WILSON, but reference to the description shows that Latham's bird is Leconte's Sparrow. The description, though brief, fits the latter bird very exactly, both as to coloration and dimensions, and the locality, interior of Georgia, is within the regular winter range of the species. Fortunately no change of specific name is, in this instance, necessary, the *Oriolus caudacutus* of Gmelin, described two years before, being a member of the same genus, even if it should be found desirable to recognize *Coturniculus* as a separate genus from *Ammodramus*; for *A. leconteii* is certainly more nearly related to *A. caudacutus* than to either *Coturniculus passerinus* or *C. henslowii*. — ROBERT RIDGWAY, *U. S. National Museum, Washington, D. C.*

The Seaside Sparrow (*Ammodramus maritimus*) in Massachusetts. — In a small private collection of mounted birds in Arlington, Mass., I find an adult Seaside Sparrow with the following history: shot by Mr. Eugene H. Freeman on the bank of the Neponset River, at high tide, about half way between Milton Lower Mills and Granite Bridge, on the Milton side of the river. Unfortunately the date of capture is not recorded; it was in the early autumn, however, something over twenty years ago, so Mr. Freeman tells me.

In most of the older lists of the birds of Massachusetts the Seaside Sparrow is said to be a common summer resident of the salt marshes along the coast. This opinion doubtless arose from confounding the Seaside Sparrow with the Sharp-tailed Sparrow (*Ammodramus caudacutus*). That such a confusion prevailed is shown by the fact that many of the old lists (*e. g.*, Emmons's 'Birds of Mass.,' Holder's 'Birds of Lynn,'

and Putnam's 'Birds of Essex Co.') exclude *A. caudacutus* altogether! Even Dr. Coues (Proc. Essex Inst., V, 1868, 282), by a lapsus corrected in 'New England Bird Life,' I, 251, recorded the Sharp-tails of Rye Beach, N. H., as Seaside Sparrows, and J. Matthew Jones ('Forest and Stream,' XII, 1879, 106) in his list of the birds of Nova Scotia included the Seaside Sparrow as an abundant summer resident of that Province, arriving there during the latter part of March! From what is now known concerning the breeding range of *A. maritimus*, we are warranted in suspecting that Brewer (Hist. N. A. Birds, I, 1874, 560), too, fell into a similar error in saying that a few pairs of Seaside Sparrows, "identified by Mr. Audubon," bred in the marshes of Stony Brook, near Boston, in 1836 and 1837.

However that may be, the eastern limit of the breeding range of the Seaside Sparrow, so far as now observed, is the western shore of Narragansett Bay, beyond which it occurs only as a very rare straggler. The first unquestionable Massachusetts specimen was killed at Nahant in August, 1877, by Geo. O. Welch, and recorded by Brewer (Bull. Nuttall Orn. Club, III, 1878, 48; Proc. Boston Soc. Nat. Hist., XIX, 1878, 260). This specimen (now in the collection of the Boston Society of Natural History, No. 221) is a young male with a sharply streaked breast; it was identified by Baird as a Seaside Sparrow "in the plumage regarded by Audubon as a distinct species, and called by him MacGillivray's Finch." Another Massachusetts specimen, an adult female shot by Dr. L. B. Bishop on Monomoy Island, Cape Cod, April 14, 1890, was recorded by J. C. Cahoon in 'The Auk,' VII, 1890, 289.—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

What is *Fringilla macgillivraii* Aud.?—In 1835 Audubon (Orn. Biog., II, 1835, 285) described under the name *Fringilla macgillivraii* a dark-colored Seaside Finch, discovered by Bachman in the salt marshes of South Carolina. Figures of this bird, drawn at Charleston by Audubon's son, were announced as finished, but the plate did not reach London in time to be engraved and published till two years later (Birds of America, Vol. IV, 1837, Pl. CCCLV). In a subsequent volume of the 'Ornithological Biography' (IV, 1838, 394) Audubon extended the range of MacGillivray's Finch so as to include similar birds found on the coast of Louisiana and Texas.

In 1888 Mr. Allen (Auk, V, 1888, 284) described under the name *Ammodramus maritimus peninsulae* a small, dark race of the Seaside Sparrow from Tarpon Springs and Cedar Keys, on the western coast of Florida, at the same time identifying with this form a series of specimens from Grand Isle, La. In the following number of 'The Auk' (p. 426) Mr. Allen pronounced a bird from the coast of Georgia to be *A. m. peninsulae*, and in the second edition of the A. O. U. Check-List the distribution of this subspecies on the Atlantic coast embraces South Carolina, the type locality of *Fringilla macgillivraii*.

In 1896 Mr. Ridgway (Man. N. A. Birds, 2d ed., p. 602) separated the Louisiana Seaside Sparrows from *A. m. peninsulae* as a distinct race, whose habitat is given as "coast of Louisiana (and coast of Texas during migration)." For this race he appropriates, in a subspecific sense, Audubon's name *macgillivraii*,—an obvious wrong, since the original description of *Fringilla macgillivraii* was based exclusively on South Carolina specimens.

The dark-complexioned Seaside Sparrows from the coast of Georgia and South Carolina are certainly very like those found on the western coast of Florida. If, as implied in the range accorded to *A. m. peninsulae* by the A. O. U. Check-List, they are identical, and if MacGillivray's Finch is to be revived, then the name *macgillivraii* will have to supplant *peninsulae*. In any case, the Louisiana Seaside Sparrow, recognized as a valid subspecies in the Eighth Supplement to the A. O. U. Check-List, remains without a name.—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

The Seaside Sparrow (*Ammodramus maritimus*) at Middletown, R. I.—I shot an adult male Seaside Sparrow on the Second Beach Marshes at Middletown, R. I., on May 31, 1897, therefore confirming Mr. Reginald Heber Howe, Jr.'s supposition that they breed there. (See Auk Vol. XIV, page 219.) This makes three birds of this species that I have taken on these marshes.—EDWARD STURTEVANT, *Boston, Mass.*

Breeding of the Seaside Sparrow in Massachusetts.—On July 17, 1896, I took a set of four partly incubated eggs of the Seaside Sparrow (*Ammodramus maritimus*), together with the female bird, at Westport, Mass. The nest was cleverly hidden within a tussock of the salt marsh.

The Seaside Sparrow is not rare as a summer resident in the Westport River marshes. It is, however, rather colonial, and confines itself closely in the breeding season to certain sections of the marshes.—J. A. FARLEY, *Newton, Mass.*

Bachman's Sparrow in Virginia.—On May 12, 1897, while collecting on a slope along the Blackwater Creek in West Lynchburg, Campbell County, Mr. John W. Daniels, Jr., of Lynchburg, collected two specimens of *Peucaea aestivalis bachmanii*, together with the nest and five eggs well advanced in incubation. He writes: "The nest was on the ground among the roots of a tuft of grass and well concealed by the numerous grass tops which overhung it. It was quite domed, with the entrance facing the southeast and was composed chiefly of grasses, strips of weed bark and weed stalks, lined with fine grasses and a few light colored rootlets." Mr. Daniels kindly presented the male to me (No. 4571, W. P. Coll.). It is in very fair plumage, being very much less worn than the Maryland specimen obtained by Mr. Figgins, which is now in the U. S. Nat. Mus. Collection. This record adds a species to the Virginia avifauna and doubtless it will be found to occur in summer over most of the eastern portion of the State.—WILLIAM PALMER, *Washington, D. C.*

Breeding of the Rose-breasted Grosbeak at Beverly, New Jersey.—On May 2, 1896, I recorded the first arrival of this bird at Beverly, and afterwards from day to day noted a male bird whistling from the tree tops in the lawns of adjoining properties to where I live. Knowing they were not early breeders I did not pay any particular attention to him until June 1, at which time he became so noisy with his continual outbursts of song, that I concluded to investigate, and soon discovered the female building the nest. The male would accompany her about the neighborhood while gathering material, and perch on the topmost branch of a nearby tree and whistle one strain after another. After incubation commenced he became more quiet, only whistling occasionally, and going off by himself on feeding trips, as I often heard him several squares away.

The nest was situated in the topmost branches or twigs of a small maple tree, about eighteen feet above the ground, and fifteen feet from the rear of a house along the river bank within the city limits of Beverly.

As this seems very unusual, as well as the most southern record for New Jersey, so far as I can ascertain, I concluded to record the note.—
J. HARRIS REED, *Beverly, N. J.*

On the Status of *Lanius robustus* Baird as a North American Bird.—Having recently had occasion to again examine the type of *Lanius robustus* Baird, which I was fortunately able to do through the kindness of the authorities of the Academy of Natural Sciences of Philadelphia, I feel more sure than ever that the bird is not North American at all. It agrees in all characters but two, namely, the larger, more strongly hooked bill and peculiar pattern of the secondaries, with *L. algeriensis*; and two examples of the latter in the National Museum collection approach it so closely in the last respect that I have little doubt it is merely an 'aberrant' specimen or possibly a local form of that species.—ROBERT RIDGWAY, *U. S. National Museum, Washington, D. C.*

Vireo flavoviridis in Nebraska—a Correction.—In order to avoid confusion, it becomes necessary to state that the bird on which the note in 'The Auk' (XIII, 263), recording the capture of *Vireo flavoviridis* was founded, has been found to be *V. olivaceus*.

In explanation of how this error occurred I will state that the specimen was somewhat abnormally colored, and according to the measurements given by Ridgway (Manual, 470), had a tail at least one inch shorter than the minimum length in *V. olivaceus*. Hence it was identified as *V. flavoviridis*. Since that time I have found, however, that the measurement of the tail, 3.15–3.30, given by Ridgway is in all probability an error. All of the authorities, Coues, Baird, Brewer, and Ridgway himself in his 'Ornithology of Illinois', do not give a maximum measurement of more than 2.50.—L. BRUNER, *Lincoln, Nebraska*.

Reappearance of the Mockingbird at Portland, Maine.—On March 6, 1897, just after my note¹ on his previous visits had gone to press and more than a fortnight after his last appearance up to that time, the Portland Mockingbird was seen by my mother in the woodbine on her house. I was at once sent for to make the identification certain. I had no difficulty in doing so, for he stayed quietly for a long time in the top of a small tree close to the house. A period of eighteen days followed during which he was not to be found, though I looked for him constantly about the city and its suburbs. On March 24 he was seen by Mr. Charles E. Noyes, who reported him singing. On March 28 he was seen by Mr. W. H. Dennett, and was carefully studied through an opera glass within a distance of some thirty yards. On neither of these occasions was he more than an eighth of a mile from the spot where he first appeared in January. Finally, on April 4, I met with him again myself, this time in an old and little used cemetery in the same section of the city as before. I walked within a few yards of him, and watched him for several minutes while he disputed with some Robins the right to a cluster of sumacs, the fruit of which had no doubt helped to carry him through the winter. Up to the present time (June 1), I have neither seen him nor heard of him since. If he stayed no later than April 4, he passed nearly eleven weeks in the neighborhood of Portland at the most inclement season of the year. —NATHAN CLIFFORD BROWN, *Portland, Me.*

A Mockingbird at Worcester, Mass.—A Mockingbird (*Mimus polyglottos*) visited us at Worcester, Massachusetts, this spring. The bird was heard singing at Green Hill, April 26, was seen on the 29th, and continued in the same locality through the month of May. He sang well, imitating notes of the Blue Jay, Phoebe and Brown Thrasher. —HELEN A. BALL, *Worcester, Mass.*

Breeding of *Sitta canadensis* in Pennsylvania.—In Warren's 'Birds of Pennsylvania,' he states that this species has been "found breeding in the mountainous regions" by Prof. H. J. Roddy. So far as I know this very general statement is all that we have on record upon which to include the bird among the summer residents of the State. It is therefore desirable to record the following more definite information regarding its occurrence.

On July 4, 1896, a young Red-breasted Nuthatch in first plumage was secured by Mr. Otto Herman Behr, near Lopez, Sullivan Co., Pa. Mr. S. N. Rhoads also noticed the species frequently in the vicinity of Round Island, Clinton Co., Pa., May 26-June 1, 1896, and later during the same summer at Eaglesmere, Sullivan Co. —WITMER STONE, *Academy of Natural Sciences, Philadelphia, Pa.*

¹ Auk, Vol. XIV, pp. 224-225.

A novel Idea of a Tufted Titmouse.—On April 10, 1897, while wandering leisurely along the border of a wood outside of Beverly, N. J., my eye caught sight of the peculiar actions of a small bird ahead of me. Walking cautiously to within a reasonable distance and using my field glasses, I observed a Tufted Titmouse (*Parus bicolor*), as I supposed trying to drive a red squirrel away. The squirrel was lying flat on the upper side of a large sloping limb, and the Titmouse would approach cautiously from behind and catch at its tail. It was not long before I noticed that the bird had collected quite a mouthful of the hairs, with which it flew off to a hole near by where it was deposited. This is certainly one of the most interesting novelties in relation to nest building that I ever met with. A friend who was with me also observed the occurrence.—J. HARRIS REED, *Beverly, N. J.*

Absence of *Turdus aonalaschkæ pallasii* at Tadousac, Quebec, in 1896.—The almost complete absence of the Hermit Thrush from the vicinity of Tadousac during the summer of 1896 was very noticeable. During six weeks spent there in June and July, the only evidence I found of the presence of the birds was a single family seen one day late in July. In other years this species has been nearly as abundant as the Olive-backed Thrush (*T. u. swainsonii*), and many of each could be heard every day, but last summer the Olive-backs alone were heard, and I wondered where the Hermits had gone. The freeze of a couple of winters ago which was so destructive to the Bluebirds in the Southern States, doubtless is responsible, in part at least, for the sudden diminution in the number of Hermits, and I have already seen some allusion made to this species as one of the sufferers.—JONATHAN DWIGHT, JR., M. D., *New York City.*

A Great Flight of Robins in Florida.—Mr. James K. Knowlton of Swampscott, Mass., informs me that he saw an enormous flight of Robins (*Merula migratoria*) on February 14, 15, 16, 1897, at Hawks's Park, situated on a branch of Indian River, about one hundred miles south of St. Augustine, Florida. They came from a southerly direction, and were continually passing, alighting and repassing, on the above dates, the general movement being in a northerly direction. The air was full of them, and their numbers beyond estimate, reminding him of bees. Mr. Knowlton heard that this movement of Robins had been noted for a distance of *ten* miles away, *across* the flight. Mr. K. shot about one hundred as they flew past the house where he was staying; he could have killed a thousand, he says (so there is *something* to be grateful for!) and reiterates that, "he saw more Robins than he had heretofore supposed existed in the world." Though a sportsman all his life, and frequenting localities where large numbers of birds congregate, like Currituck Sound, he states, without hesitation, that this was the largest flight of birds he had ever seen in his life.—GEORGE H. MACKAY, *Nantucket, Mass.*

Rare Birds in the Vicinity of Philadelphia.—On Sept. 5, 1894, a specimen of *Contopus borealis* was secured near Holmesburg, Pa., and on May 18, 1895, a specimen of *Empidonax traillii alnorum* was secured.

This is, I believe, the first definite record for the latter in this part of the State, as I am unable to find any in Stone's 'Birds of Eastern Pennsylvania and New Jersey.'—WITMER STONE, *Academy of Natural Sciences, Philadelphia, Pa.*

A Few Notes on the Avifauna Columbiana.—A Swallow-tailed Kite (*Elanoides forficatus*) was observed flying over the Virginia side of the Aqueduct Bridge, by the writer, April 11, 1897. This bird is exceedingly rare here and records for this locality are scarce.

On the same date I took a set of eggs of the Turkey Vulture, about two and a half miles south of Falls Church, which is a very early date for this locality, and merits a notice.

As spring records for the Connecticut Warbler are scarce, it may not be amiss to say that I noticed a specimen May 9, 1897, in a swampy ravine, on Eastern Branch, south of the Reform School.—PAUL BARTSCH, *Smithsonian Institution, Washington, D. C.*

Northern New Jersey Notes.—In consequence of the lack of a New Jersey record of the Cerulean Warbler (*Dendroica rara*) in 'The Birds of Eastern Pennsylvania and New Jersey,' by Witmer Stone, I desire to note the capture of this species on an oak clad hill of Boonton, Morris Co., N. J., about the first of September, 1887. In the same township I took a young Henslow's Sparrow (*Ammodramus henslowii*) in a tussocky meadow on August 8, 1889.—SYLVESTER D. JUDD, *Department of Agriculture, Washington, D. C.*

Bird Notes from Massachusetts.—*Mniotilta varia*.—On the 15th of December, 1895, a single individual of this species was seen among the pear trees in the yard. A heavy snow-storm was raging at the time, but the bird was actively engaged clambering about on the trunks, on the sheltered sides of the trees, where the damp snow did not cling. This bird may have been the same one, seen in the same spot November 13, in company with a flock of Chickadees. On both occasions the bird was very tame and confiding, allowing me to approach near enough to see all its markings. It was not seen again after the snow, which was the first heavy storm of the winter.

—*Dendroica coronata*.—On the 29th of July, 1896, a single bird was seen in an orchard at Mt. Wachusett, Mass. It was engaged in catching flies and other insects, and several times uttered its characteristic *teck* and *wheest*. The occurrence of this species at this date seems noteworthy as being several weeks earlier than the usual appearance of the bird in this region.

Junco hyemalis.—It is interesting to note that two pairs of Slate-colored Juncos nested on the summit of Mt. Wachusett during the summer of

1896. The mountain is about 2500 feet in height, and the birds stayed at the top, which is a few feet above timber line, but after the young were well grown all the Juncos formed a small flock, and frequented the tract comprising the border of the timber, rarely going more than a few rods from the timber line. — GLOVER M. ALLEN, *Newton, Mass.*

Three Birds rare in Framingham, Massachusetts. — *Hydrochelidon nigra surinamensis*. — June 20, 1889, found my brother with the writer floating in our canoe, down the Sudbury River in Wayland near the dividing line of Wayland and Sudbury. We had arrested the canoe's progress opposite a bunch of lily pads, hoping to draw a pickerel from the shady depths, when our attention was drawn towards a small dark colored bird, also fishing for some member of the finny tribe. I caught up the gun and fired but missed. Further down the river we again met the bird and at long range dropped it into the water. I had never seen the bird before, but descriptions pronounced it a Black Tern, which it proved to be; a perfect adult male in full plumage. The bird was so near the line when first seen that I enroll it in the list of our birds. Since then, I understand that Mr. C. J. Maynard, of Newtonville, Mass., secured a companion bird, possibly about ten days previous, near the same place.

Colymbus holboellii. — A fine adult female of this species in perfect plumage, was brought me by a boy who said he shot it in a pond entirely surrounded by a medium growth of hardwood trees located at the westerly part of the town. It was accompanied by a second, possibly the male, which remained near by for some time, but he was unable to get a shot at it. Two young birds of this species in fall plumage were shot on the Sudbury River this last fall.

Sylvania mitrata. — On going out to the barn Sunday evening, Oct. 15, 1893, to do the accustomed chores, I found a small bird flying about the grain room. At first, thinking it was an English Sparrow, I paid little attention to it but a second glance in its direction, when the light from the lantern revealed the coloring of the head, I saw it was not a Sparrow. I, therefore, shut the door and an exciting chase ensued; finally the little bird dropped exhausted behind the grain barrels, and none but ornithologists in localities where the Hooded Warbler is so rare, can judge of my delight when in looking over the barrels I beheld the upturned face of this beautiful bird. I carried it into the house and gave it full possession of the birdroom. On returning from business Monday noon I found the little bird lying dead on one of the cases, probably from starvation, as the stomach was entirely empty. I judge the bird was driven from its course by the severe storm of two days previous. In plumage it is equal to any adult male in my collection taken during the months of May and June in the South. — H. D. EASTMAN, *Framingham, Mass.*

Bibliographical Note. — The obituarists of the late Major Bendire are in doubt or in error regarding his earliest direct or indirect contributions

to ornithology (Science, Feb. 12, 1897; Osprey, Mar., 1897, p. 88). The record of Bendire material published by myself will be found in full in my 'Check-List,' 2d ed., 1882, pp. 150, 151; and that published by others for him, or by himself, to 1878, in Birds Coll. Vall., pp. 694, 695, 718, 729, or to 1880 in Bull. U. S. Geol. Surv. Terr. V, Sept. 30, 1880, as pp. 551, 568, 583, 607, 748, 749, 972, etc. But the latter publication is not indexed, and all the Bendire matter it may contain is not easily found; also, titles as cited of other matter than that by himself are not all identifiable as Bendirean without reference to the articles themselves. Some little search shows the following, 1872-76:

1872. COUES, E. A New Bird to the United States. < *Amer. Nat.* VI, June, 1872, p. 370.
Glaucidium ferrugineum (*G. phalænoides* of A. O. U. List), taken in Arizona by Bendire, and sent to me. So far as my investigation or recollection goes, this is his first appearance in print.
1872. COUES, E. The Nest, Eggs, and Breeding Habits of *Harporhynchus crissalis*. < *Am. Nat.* VI, June, 1872, pp. 370, 371.
 Based on Bendire's MS. and material.
1872. RIDGWAY, R. Occurrence of *Setophaga picta* in Arizona. < *Am. Nat.* VI, July, 1872, p. 436.
 Based on Bendire, as before.
1872. COUES, E. Nest and Eggs of *Helminthophaga lucia*. < *Am. Nat.* VI, Aug., 1872, p. 493.
 Based on Bendire, as before.
1872. COUES, E. Occurrence of Couch's Flycatcher in the United States. < *Am. Nat.* VI, Aug., 1872, p. 493.
 Based on Bendire, as before.
1873. COUES, E. Some United States Birds, New to Science, and other Things Ornithological. < *Am. Nat.* VII, June, 1873, pp. 321-331.
 Based on Bendire, as before. The new species are *Harporhynchus bendirei* and *Peucaea carpalis*.
1873. BREWER, T. M. Description of some Nests and Eggs of Arizona Birds. < *Proc. Bost. Soc. Nat. Hist.*, XVI, 1873, pp. 106-111.
 Based on Bendire, as before.
1874. RIDGWAY, R. Two Rare Owls from Arizona. < *Am. Nat.* VIII, Apr., 1894, pp. 239-240.
 Based on Bendire, as before. The Owls are *Syrnium occidentale* and *Micrathene whitneyi*.
1876. ALLEN, J. A. Breeding of the Canada Goose in Trees. < *Bull. Nutt. Club*, I, July, 1876, p. 50.
 Based mainly on Bendire.
1876. ALLEN, J. A. *Anser rossii* in Oregon. < *Bull. Nutt. Club*, I, Sept., 1876, p. 52.
 Based on Bendire, as before.
1876. ALLEN, J. A. Geographical Variation in the Number and size of the Eggs of Birds. < *Bull. Nutt. Club*, I, Sept., 1876, pp. 74, 75.
 Based on Bendire.

The first paper ostensibly by Bendire may be that on the nest and eggs of Clark's Crow, in *Bull. Nutt. Club*, I, 1876, pp. 44, 45, though this is actually written by Dr. Allen from Bendire's MS. The first formally and actually by him may be that on the Birds of Oregon, in *Pr. Bost. Soc. Nat. Hist.* XIX, 1877, pp. 109-149. For a note on his introduction to ornithological print see *The Osprey*, Apr., 1897, p. 113.—ELLIOTT COUES, *Washington, D. C.*

RECENT LITERATURE.

Ridgway's *Birds of the Galapagos Archipelago*.¹—The Galapagos Archipelago has come to be classic ground in ornithology. In the present paper of over two hundred pages Mr. Ridgway treats the subject exhaustively, so far as available material and previous work permits. Yet it is evident that the field is as yet far from thoroughly worked. From some of the sixteen islands that compose the group only scant material has been obtained. Says Mr. Ridgway: "Not a single island of the group can be said to have been exhaustively explored, and few of the species are known in all their various phases; in fact, many are known only from a few specimens in female or immature dress. No observations have been made 'upon the attitude the different species of *Geospiza* maintain toward one another tending to show how far the differences observable, or thought to be observable, in dried specimens indicate the actual grouping in species of living individuals.' The anomaly of individuals adult as to plumage but with bills suggesting immaturity, and of others which show exactly the reverse, remains to be explained; and there are other questions which only protracted field-studies by a competent investigator can decide. Until all these present mysteries are solved, theories and generalizations are necessarily futile."

Regarding the origin of the Galapagoan fauna, Mr. Ridgway considers that the time has not yet arrived when theorizing may be indulged in with any great degree of confidence. He notices briefly the two leading theories respecting the origin of the Galapagos group of islands—namely, the old and formerly generally received conception that they are

¹ *Birds of the Galapagos Archipelago*. By Robert Ridgway, Proc. U. S. National Museum, Vol. XIX, No. 1116, pp. 459-670, pll. lvi, lvii, with 7 cuts and numerous distribution charts in the text. Dated 1896; issued March, 1897.

volcanic, and Dr. G. Baur's theory that they are the remnants of a former large oceanic land area—and presents the evidence afforded by the birds. He considers in this connection the relationships of the five peculiar Galapagoan bird genera, and finds that only two "are of evident American relationship. The remaining three have so obvious a leaning toward certain Hawaiian Dicaeidae forms that the possibility of a former land connection, either continuous or by means of intermediate islands as 'stepping stones,' becomes a factor in the problem. It may be," he adds, that the resemblance of these three genera to "Hawaiian forms is merely a superficial one, and not indicative of real relationship. I do not by any means claim, on the strength of such evidence, a common origin for them, but merely present the facts as 'food for reflection.'"

In this connection Mr. Ridgway gives a summary of the ranges of the genera of Galapagoan birds, without, however, deriving from this study any decisive evidence as to "whether the non-peculiar portion of the Galapagoan avifauna is most nearly related to that of the adjacent mainland of South America or that of lower Central America or the West Indies."

Mr. Ridgway comments on the perplexing difficulties that beset the discrimination of the many closely related forms, and says that "when ever there seemed to be a well-defined average difference between specimens from different islands, I have not hesitated to separate them as local forms. No other course, indeed, was practicable; for were 'lumping' once begun there could be no end to it, unless purely arbitrary limits were given to the species recognized, and if followed to a logical conclusion might easily end in the recognition of a single variable species, equivalent in its limits to the genus."

The distribution of the 105 species thus far recorded from the Galapagos Archipelago is shown in a series of tables, as to the group of islands collectively, and for each island individually. Then follows the detailed treatment of the species, with charts showing their distribution in the Galapagos Islands. It is interesting to observe that five-sixths (53 species) of the Passerine birds belong to four genera—*Nesomimus*, *Certhidea*, *Geospiza*, and *Camarhynchus*—peculiar to the Galapagos, and that half the remainder belong to the genus *Pyrocephalus*; and that all but two of the 61 species of Passerine birds are peculiar to the Islands, the other two being of casual occurrence. Most of the remainder are wide-ranging water birds, with a few species peculiar to the Galapagoan fauna.

The species are treated exclusively from the systematic standpoint, giving their synonymy and bibliography, with full descriptions, tables of measurements, and their ranges, together with discussions of their relationships. The paper concludes with a bibliography of all the works and papers relating to Galapagoan ornithology. Mr. Ridgway has thus given us a detailed and masterly monograph of the birds of the most interesting and instructive group of islands known to science.—J. A. A.

Cooke's Birds of Colorado.¹—In this Bulletin of 143 pages, Prof. Cooke, attempts "to set forth our present knowledge of the distribution and migration of Colorado birds. There is also included a bibliography of the subject and an historical review of the progress of ornithological investigation in this State." The total number of species and subspecies thus far known from the State is 363 (see p. 128), of which 230 have been found breeding within the State. The records given "are based first of all on all the printed matter that has appeared dealing with the birds of Colorado. This mass of material has been supplemented by much manuscript matter, and by personal observations of the author during a four years' residence in the State. . . . The only claim for completeness made by the present list is that it is complete so far as work done up to this time is concerned. Experience in this State as well as in others teaches that additions will be made for many years to come." As the writer says, many parts of the State have never been visited by an ornithologist, including many areas of large extent; the work thus far done has been limited to "the region along the eastern base of the foothills," "thirty miles wide and one hundred and fifty miles in length," to which "four-fifths of all the records of Colorado pertain." There is thus, as Prof. Cooke emphasizes, inviting fields here for further ornithological research.

A few pages are given to the topography and climatology of the State, followed by acknowledgments to collaborators for valued assistance. Next follows a series of twelve lists classifying the birds in accordance with the nature of their occurrence, as residents, winter visitants, etc., A tabular statement of dates of arrival (pp. 18, 19) is then given for four points, — St. Louis, Mo.; Fort Lyon, Loveland, and Idaho Springs, Col. An annotated 'Bibliography of Colorado Ornithology' occupies pp. 20–39, numbering 182 titles, beginning with Pike, 1807. Then follows 'The History of Colorado Birds' (pp. 40–48), in which the more important of the papers listed in the 'Bibliography' are taken up chronologically and further summarized, followed by a tabular recapitulation of the species added to the State by the successive authors. The annotated list of 'The Birds of Colorado' occupies pp. 49–128, entered under the A. O. U. numbers and names. The annotations indicate quite fully the nature of the occurrence of each species within the State, including relative abundance, dates of immigration, and the portions of the State it frequents, and where it breeds. No species is apparently included without good evidence. A few additional species are given (in brackets in small type) that have been taken on the borders of the State, under circumstances that indicate their probable occurrence within the limits of Colorado. A very full index (pp. 129–143) concludes the paper, which has evidently been prepared with great care and thoroughness, and with the expenditure of

¹ The Birds of Colorado. By W. W. Cooke. Bulletin No. 37, State Agricultural College, Fort Collins, Colorado, March 17, 1897. 8vo, pp. 143.

much time and labor. Indeed it may well be taken as a model for a State list. We note, however, that the Wheatear (*Saxicola *wnanthe**) is referred to as "A European species, straggling to New England, and once taken at Boulder," Colorado, whereas it is a not uncommon bird in Greenland, Labrador, and other parts of Arctic America. We regret to see, however, that in the section devoted to the history of Colorado Ornithology, generic names are printed with a lower case initial letter, which is not only unusual and unsightly, but renders it much more difficult to individualize quickly the names of the species in a running glance through the paragraphs. For this it is hoped the author is not responsible. Typographical errors are scarce, particularly in technical names, and the paper as a whole is very creditably printed.

The announcement is made that copies may be had gratuitously on application to the Director of the Agricultural Experiment Station, Fort Collins, Colorado.—J. A. A.

Miller on Construction of Scientific Names.¹—This paper is designed, as stated in a note by the publication committee of the California Academy of Sciences, as "a comprehensive, and at the same time readily accessible and reliable, treatise on the rules that should govern the selection and formation of scientific names derived from Greek and Latin," the committee believing that such a treatise would prove useful to local botanists and zoölogists of Western North America for many years to come; and they might well have added, of Eastern North America as well. Says the author: "Various scientific writers have arbitrarily departed from the philologically correct method of nomenclature established by Linnaeus; moreover some difference of opinion now prevails in regard to the formation, gender and inflection of certain New Latin words derived from the Greek. Definite rules have been wanting, or at least not readily available. Accordingly, at Dr. Jordan's request, and with his kind assistance, I have undertaken to formulate a set of rules based upon philological principles and at the same time agreeing with the practice of consistent nomenclators. Ultra-purism, however, as the writing of *ai* and *oi* for the Greek *ai* and *oi* or of *k* for Greek *κ*, shall have no more consideration than the philological monstrosities produced by a *Rafinesque* or a *Swainson*."

The rules given by Prof. Miller are clear and concise, and will certainly be welcome to a large proportion of at least the younger systematists who find themselves called upon now and then to provide names for new genera and species or even higher groups. The rules are intended to give directions as to how to construct properly names derived from Greek and Latin, in future work; they are not intended to be retroactive, for

¹Scientific Names of Latin and Greek Derivation. By Walter Miller, Professor of Classical Philology, Leland Stanford Jr. University. Proc. California Academy of Sciences, 3d. Ser., Vol. I, No. 3, pp. 115-143.

the correction of past errors. As Prof. Miller, who has of course due regard for philological proprieties, well says: "We may recognize the law of priority as absolute, and retain the many monstrous and misspelled names to be found on the records of natural history, just as their makers left them. They are historic facts and serve to mark the group of animals or plants to which they apply, but these misshapen forms of words are not ornamental and they are unworthy of scholars. It is to be hoped that, in future, greater care may be taken to make words that give correctly the idea the author may have intended. . . . It costs no more to frame a name properly than to leave it a monstrosity."—J. A. A.

Chapman's Notes on Birds Observed in Yucatan.¹—In the present paper Mr. Chapman gives the ornithological results of his short excursion to Yucatan, where, in March, 1896, he spent about three weeks at Chichen-Itza in the study of bird-life. Seventy-four species were observed, a list of which, together with critical notes and remarks on habits, are here given, preceded by a short sketch of the physical features of the region and the derivation of its avifauna.

A new genus, *Agriocharis* (p. 288), is created for the reception of the Ocellated Turkey; and an attempt is made to prove the Guatemalan Green Jay specifically distinct from the Rio Grande bird. With the latter we are unable to agree.

A very useful list of the principal contributions to Yucatan birds concludes the paper.—C. W. R.

'Upon the Tree-Tops.'²—Students of birds out of doors will welcome a new volume by Mrs. Miller. Her enthusiastic and careful observations of the home-life of birds have not only added to our knowledge of the habits of species whose ways we supposed were well known, but they have shown how much there is in bird-life to interest every stroller in the woods and fields. It is the human-like nature of birds that appeals to Mrs. Miller and in writing from this point of view she brings birds nearer to us and arouses a sympathetic interest in them even among readers to whom her feathered friends are strangers.

In the present volume we have accounts of the Loggerhead Shrike, Winter Wren, Yellow-breasted Chat, Ruby-throated Hummingbird, and more or less extended observations on numerous other birds in chapters entitled, 'Tramps with an Enthusiast,' 'Young America in Feathers,' 'Down the Meadow,' 'In a Colorado Nook,' and 'The Idyl of an Empty

¹ Notes on Birds observed in Yucatan. By Frank M. Chapman. Bulletin of the American Museum of Natural History, VIII, pp. 271-290, Dec. 11, 1896.

² Upon the Tree-Tops. By Olive Thorne Miller. Illustrated by J. Carter Beard. Boston and New York: Houghton, Mifflin and Co. The Riverside Press, Cambridge, 1897. 16mo, pp. ix + 245, pll. x.

Lot.' Unfortunately the locality at which these notes were made is in some instances given in only a general way, while in others it is wholly omitted.

The two concluding chapters are written from the 'Bird-Room' and give detailed studies of the Clarin (*Myiadestes unicolor*, not *M. obscurus*, the latter being known as the Jilguero) and Orchard Oriole in confinement.

It is difficult to overestimate the value of books of this class. They reach an audience to whom the ordinary 'bird-book' is unknown and we feel assured that the present greatly increased desire for information about our birds is largely due to the influence of just such books as Mrs. Miller's. — F. M. C.

The Sharp-tailed Sparrows of Maine.¹—Mr. Norton records the breeding of *Ammodramus caudacutus subvirgatus* in 'fair' numbers at Small Point, Sagadahoc County, the first time this race has been discovered nesting in the State. In discussing the relationship of our three forms of Sharp-tailed Finches it is very pertinently suggested that as typical *Ammodramus caudacutus* is known to breed at Scarborough, only some thirty miles west of Small Point, it is quite probable that *subvirgatus* and its western representative *nelsoni* are specifically distinct from *caudacutus* and should therefore stand as *Ammodramus nelsoni* and *Ammodramus nelsoni subvirgatus*. — F. M. C.

The Story of the Farallones.²—In an attractive little booklet of thirty-two pages Mr. Barlow gives an interesting sketch of the Farallones and their bird-life. Numerous half-tone reproductions of photographs afford an excellent idea of the topography of the islands, the dangers of 'egging,' and the nests and numbers of certain of the sea-birds that have made these barren rocks famous. — F. M. C.

Bird-Nesting with a Camera.³—Parts III and IV of this work appeared respectively in April and May, the latter part concluding the first volume of a book which will long hold first place among those

¹ The Sharp-tailed Sparrows of Maine with Remarks on their Distribution and Relationship. By Arthur H. Norton. Proc. Portland Soc. Nat. Hist., II, 1897, pp. 97-102.

² The Story of the Farallones. Text by C. Barlow. Arranged and Published by H. R. Taylor, Editor of the Nidologist. Alameda, California, 1897, oblong 16mo, unpagged, numerous half-tone illustrations. Price 50 cents.

³ Among British Birds in their Nesting Haunts. Illustrated by the Camera. By Oswin A. J. Lee. Parts III and IV, Edinburgh, David Douglas. Folio, Part III, pp. 79-120, pll. X; Part IV, pp. 121-159, pll. X.

devoted to illustrating the nests of birds. Part III contains plates of the nests and eggs or nests and young of the Long-tailed Tit (two plates), Black-headed Gull, Little Grebe (two plates), Golden Plover, Lapwing (two plates), Herring Gull, Greenshank. In Part IV, nests of the following species are figured: Woodcock, Oyster-catcher (two plates), Tree Pipit, Reed Bunting, Ringed Plover (two plates), Little Tern (two plates), Jackdaw. — F. M. C.

Birds of Wellesley.¹ — The author states that this list "is designed especially for the use of students in Wellesley College, and others interested in the bird-life of Wellesley and surrounding towns, its chief purpose being to give an approximately correct idea of the bird-life of the district, and serve as a convenient pocket guide to observations," and it is admirably adapted to meet this end. It is well summarized as containing "75 water-birds and 169 land-birds, in all 244 species and varieties. Of these about 23 are visitors from the coast, and about 36 are accidental wanderers from various points of the compass, chiefly from the West and South. Of the 185 species remaining, 95 land-birds and 20 water-birds are fairly common, and should be met with by an ordinary observer in the course of a year, while the remaining 70 are either scarce or irregular in distribution, and are unlikely to be seen except by special effort or good fortune."

Each species is annotated with reference to its time and manner of occurrence, haunts, and in the case of breeding species, location of nests, and there are also cross-references to text-books treating of the birds of the same region.

While lists of this kind may not have sufficient value to deserve publication in an ornithological magazine or the proceedings of a natural history society, their value to local bird-students is undoubted, and we trust Mr. Morse's excellent list may be followed by others of similar character throughout the country. — F. M. C.

Nehrling's Birds: Vol. II.² — Previous notices³ of this interesting work have given its scope and character so fully that the reviewer in the present instance has little to do beyond attesting the fidelity with which the promise of earlier portions has been kept to the end, and congrat-

¹ Annotated List of Birds of Wellesley and Vicinity, Comprising the Land-birds and most of the Inland Water-fowl of Eastern Massachusetts. By Albert Pitts Morse, Curator of the Zoölogical Museum, Wellesley College. Published by the Author: Wellesley, Mass., 1897. 16mo, pp. 56, one plate.

² Our Native Birds of Song and Beauty, being . . . etc. By Henry Nehrling. Vol II. Milwaukee: George Brumder. 1896. Large 4to or sm. folio, title-leaf and pp. 1-452, pll. col'd xix-xxxvi. (Pub. in Parts, 1894-96.)

³ Auk, Jan. 1890, p. 70; Apr. 1894, pp. 160, 161.

ulating the genial author upon the successful issue of his undertaking. The second volume, completed this year upon the appearance of the final one of the numerous parts in which the whole has been issued, carries the Birds "of Song" through the remainder of the oscinine Passerines, while those "of Beauty" include the clamatorial Passerines, the Picarions, and the Psittacines. These are illustrated upon 18 colored plates—a few of the subjects of these compositions having been already treated in Vol. I—raising the number of plates to 36, evenly balanced between the two volumes in which the work is now finally bound. They are handsomely bound in full Russia, gilt-edged, and beautifully printed with rubricated margins and other typographical elegancies. There is no falling off in the execution of the plates, and in fact no more luxurious a work on ornithology has appeared in this country of late years. Mr. Nehrling steadily maintains to the finish the faithful and careful preparation of the text to which he addressed himself in the beginning; it is written with fine feeling, good temper, and excellent judgment, to present popular life-histories which shall "combine accuracy and reliability of biography with a minimum of technical description." The birds with which the author is familiar from personal experiences are treated in greatest detail—some of them as completely as by any previous writer; and the rest are handled with judicious eclecticism in borrowing from the writings of others, always with generous acknowledgement. The author shows great tact in this particular—it is the reverse of that scissors-and-pastepot method of compilation which pads too many popular treatises. No more attractive and presentable volumes on our birds are now before the public; and we trust that this labor of love, as it certainly has been on Mr. Nehrling's part, may meet with the full measure of recognition it so well deserves. The author has taken and will long maintain a unique position in North American ornithology; we did not prophesy aside from the mark, though we ventured to do so before the event, in recording our conviction that Nehrling would awake some day to find his writings ranked with those we are accustomed to call classic.—E. C.

Chapman's 'Bird-Life.'¹—When Mr. Chapman's excellent 'Handbook of the Birds of Eastern North America'² was published it was very evident that the author had made a special study of the needs of young students of ornithology and other non-professional bird-lovers. That his task had been admirably executed is a matter of general information;

¹ Bird-Life | A Guide to the Study of | Our Common Birds | by | Frank M. Chapman | Assistant Curator of the Department of Mammalogy and | Ornithology in the American Museum of Natural | History, etc. | With seventy-five full-page plates and | numerous text drawings | by Ernest Seton Thompson | author of Art Anatomy of Animals, the Birds of Manitoba, etc. | New York : D. Appleton and Company. 1897. 12mo. pp. xii + 269.

² Cf. Auk, Vol. XII, pp. 282-284.

and therefore, when the preparation of a second book by Mr. Chapman was announced, bird students awaited its publication with great interest. That their expectations will not be disappointed is reasonably sure, for 'Bird-Life' is a work of equal merit with the 'Handbook,' and will doubtless, by reason of its wider scope and somewhat different purpose, prove even more generally useful. Although conceived in the same spirit the two books are nevertheless quite distinct in their character; for, while the 'Handbook' is, as its title indicates, essentially a systematic and descriptive synopsis of the birds of the eastern United States, 'Bird Life,' although of less extent, is more comprehensive in its plan, the first seven chapters being devoted to as many distinct subjects. Thus, on seventy-three of the two hundred and sixty-one pages of text the relations of birds to man, evolution, coloration, migration, voice, nesting, and kindred topics are discussed concisely, entertainingly, and instructively, the concluding portion consisting of a "field key" to the common land-birds of the northeastern United States. This last portion of the book embraces two parts so essentially distinct from one another that it would seem a separate title should have been given to the latter portion, since it is not in any sense a 'key,' but a descriptive synopsis.

The "field key" proper, which covers something over eight pages, is very different from the 'keys' of the 'Handbook,' being a purely artificial grouping of more than one hundred familiar species according to (1) habits and (2) coloration. The species are divided into three main groups, as follows:—"First Group. Birds that catch their insect food in the air;" "Second Group. Climbing and Creeping Birds"; "Third Group. Birds not included in the preceding groups." The third group is subdivided into five sections, according to coloration. Section I, includes those species with yellow or orange in the plumage; Section II, with red in the plumage; Section III, with blue in the plumage; Section IV, birds conspicuously black or black and white; Section V, birds not included in the preceding sections.

While the utility of keys based upon such purely artificial characters, for the more ready identification of birds by persons wholly unfamiliar with even the rudiments of classification, may not be questioned, it is very evident that Mr. Chapman's efforts in this line are not entirely successful; it is probable, however, from the nature of the case, that no one else will be able to do better. In the first place Mr. Chapman found it necessary to exclude females and young, a restriction at once minimizing the value of the key; again, the same species is repeated in different sections, the Ruby-crowned Kinglet occurring among species which are said to be *without* red in the plumage and also among those which *have* red; Section V, includes a species (Towhee) embraced also in section IV; and although the third group is stated to contain "birds not included in the preceding groups" it nevertheless does include two species (Kingbird and Flicker) placed also in the first and second groups, respectively. It also seems that the first group is not very satisfactorily limited, since many

an observer would naturally seek there the name of some Red-headed Woodpecker, Cedarbird, Redstart, or Fly-catching Warbler which had attracted his or her attention.

The untitled portion following the field-key takes up in systematic order (following the sequence of the A. O. U. Check-List) the species mentioned in the key, and describes, somewhat in detail, but very interestingly, their salient characteristics of habits, voice, etc. Several statements in this portion of the work may, however be fairly questioned while others require correction. Of Grebes, it is said (p. 86) that they "are quite helpless on land. They can not even stand erect on their toes . . . but when resting, support themselves on the whole length of the foot or tarsus." Grebes, however, are not only able to stand erect on their toes, and frequently do so, but walk also in this position. Plovers are characterized as differing from Snipe in possessing "three instead of four toes"; a very erroneous diagnosis, since several genera of Plovers possess a well-developed hallux while some Snipe have none! Woodpeckers are said (p. 136) to be "represented in all the wooded parts of the world except Australia and Madagascar." They are quite wanting also in New Guinea, New Zealand, and the whole of Polynesia, and a recent high authority states that no species of the family is known to have occurred in Egypt. Young Hummingbirds are likened to "a tangle of tiny pink limbs and bodies" (p. 149). Are young Hummingbirds, even when newly hatched, ever pink? Those that I have seen were very dark-colored—a sort of livid gray or slate-color.

The particular points to which attention is called above are, of course, comparatively trivial inaccuracies. Not so, however, the statement (on page 2) that birds, like reptiles, have the heart three-chambered, since it is well-known that in this respect birds agree with mammals (which have a four-chambered heart) and not with reptiles.

These criticisms of 'Bird-Life' are not made in any captious spirit, but to show that the book, like practically all others, is not wholly free from faults. It may truthfully be said that 'Bird-Life' is a book which will prove most useful to those requiring the kind of information which it professes to give, and which no other book supplies in so concise and entertaining a form. The illustrations are, in the main, excellent, and of course add greatly to both the utility and attractiveness of the volume.

—R. R.

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CORRESPONDENCE.

The A. O. U. Check-List.

EDITORS OF 'THE AUK':—

Dear Sirs:—I have been much impressed with Dr. Coues's arraignment of the arrangement of our present Check-List—having felt for some time its deficiencies, but scarcely daring to hope for its improvement. While, of course, aware of the real difficulties in the way and the clash of opinions that must arise when the anchors are raised, I believe that there is a call now not only for a rearrangement of the genera and species in many places, but that, in some instances, this should extend to the families—just possibly to an order or two.

With our present sequence of orders, many of the families, as they now stand, express a propinquity or continuity of kinship that is not always the sequence of the probable development; and the question may arise in some minds, which of these two relationships is the more important. But in most cases the interests may both be as well or better expressed by the newer arrangement: Thus in the Paludicolæ, while the Rallidæ are certainly the lowest or nearest the *Apteryx* and the Podicipidæ, yet in our linear arrangement they are not contiguous to either of these groups; but since they precede the Limicolæ, their high position in their own order places them rightly as the next of kin to this order above. While this may seem a rather 'natural' gradation the position of the Jacanidæ in the Limicolæ, viewed from either standpoint, seems preposterous, when we recall how Ralline is its structure. If we had in our North American birds any of the many connecting links that lie between the Limicolæ and the Herodiones, the Jacanidæ might be crowded away from the lower edge of its order by the stronger claims of these; but our presumption is that our list expresses the best sequence of our own birds.

But in the Gallinæ just the opposite thing may be thought to prevail. Following the Peristeropodan line of kinship, the Cracidæ might remain on the Columban edge of this order; but this certainly very much embarrasses the evolutionary order in the Gallinæ, and since the Peristeropodes are a very erratic branch, we might as well run the relationship from the Tetraonidæ around through the American genera *Geotrygon* and *Sturnellas* (not having the Old World connecting links) and thus properly rearrange the generic sequence in the Columbæ. Within many orders, as the Raptores, the present order need not be disturbed.

Touching the sequence of families in the Passeres, it is doubtful if any agreement could be had. Notwithstanding the low indications of their tarsal envelopes, I should like to see the Alaudidæ, as indicated by Sharpe, placed nearer the Fringillidæ and Motacillidæ, but I presume there are many who would not consent to it.

With regard to the genera — especially in these Passerine families: — If the Icteridæ are to precede the Fringillidæ (which with the Corvidæ low down seems inevitable) then surely *Dolichonyx* and *Molothrus* should be at the end of their family rather than at the beginning; and with the Tanagridæ naturally following, some rearrangement of the general heterogeneousness seems necessary in the grosbeaked Fringillidæ at least. In some families, also, the present sequence seems fairly natural, as in the Mniotiltidæ.

As Dr. Coues has said, our numbers are mixed and our method clumsy. Something much better can be gotten up — especially with a view to interpolation. Rearrangement would also give us a chance to give the genera a revision in the light of our newer knowledge — with possibly a touch or so upon the families. For my part, because of striking differences in form and habit, I would like again to see the Mimidæ free from the Troglodytidæ — believing slightly in some revision being reversionary, yet progressive.

Very truly yours,

Mexico, Mo.

JAMES NEWTON BASKETT.

TO THE EDITORS OF 'THE AUK':—

Dear Sirs: — Dr. Coues's Article, 'The most General Fault of the A. O. U. Check-List,' in the April 'Auk' forcibly calls to mind a remark my father made when the first Check-List came out, *viz.*, that it was like removing the pole of a wagon to the rear axle and leaving the seats as they were before.

I have not had an opportunity to compare opinions on the subject of late years with ornithologists but to express my humble opinion, it seems to me that but one course remains and, as Dr. Coues so ably expresses it, that the "Check-Lists now extant be officially cancelled and formally repudiated in the near future."

It seems to me this can not be done any too soon, as we must come to it eventually.

Also, when this sequence of genera, species, etc., has been rearranged, let a host of various subspecies be subjected to the most rigid examination, so that the presence or absence of a certain shade of color, a spot or a streak here or there is not made sufficient basis to found a subspecies on.

Milton, Wis.

LUDWIG KUMLIEN.

NOTES AND NEWS.

ROBERT HOE LAWRENCE, an Associate Member of the American Ornithologists' Union, died at Danville, Ill., on the 27th of April, 1897. For a number of years he was a frequent contributor to 'The Auk.' In 1892 he published an account of the birds of the Gray's Harbor region (Vol. IX, 1892, pp. 39-47, 352-357), where he had spent almost a year in one of the dense forests of Washington.

Mr. Lawrence was a son of DeWitt C. Lawrence, of New York, and a grandson of Richard M. Hoe. He was born in New York, October 16, 1861. From his early boyhood he showed a great love of nature and out-door life. Much of his life he had spent in travel, and for the last seven years he had lived on the Pacific Coast, in Washington, Oregon, and Southern California.

Always a lover of nature, he became in his later years especially interested in ornithology. He was drawn to the study of birds by his love of music and his sense of beauty. His trained ear found in the notes of birds suggestions of the themes of Beethoven, Schubert, and Chopin, his favorite composers. He had besides a strong feeling for art and letters; but what endeared him to his friends and makes his memory precious was his faithfulness to his ideals of true and pure manhood.

PROFESSOR EDWARD DRINKER COPE died at his home in Philadelphia, April 12, 1897, at the age of nearly 57 years, he having been born July 28, 1840. In his death science has lost one of the greatest naturalists America has yet produced. As a vertebrate zoölogist and palæontologist, the world has seen few that can be ranked as his equal. Although not especially recognized as an ornithologist, as he published little on recent birds, he is known to have possessed, and on occasions displayed, a profound general knowledge of the class, and to have had a good field knowledge of the birds of eastern North America. In other departments of vertebrate zoölogy he has long been recognized as one of the highest authorities, especially in reptiles, both recent and extinct, while his contributions to mammalian palæontology have been almost unrivalled. He is also the author of several epoch-making schemes of classification, including especially one of fishes, and is properly recognized as one of the chief founders of the Neo-Lamarckian school of evolutionists, of which he was one of the most able exponents. He was gifted with a powerful

intellect, remarkable keenness of observation, and, in the main, admirable judgment. As one writer has tersely and wisely said of him, "One hesitates which to admire the most, the tenacity of his memory, the brilliancy of his wit, or the ease with which he used his enormous erudition. To any community, and at any time, the loss of such a man is a calamity." It is therefore more than fitting that a few lines should be here devoted to his memory. As editor for many years of the 'American Naturalist,' he is doubtless well known to the readers of 'The Auk,' who will find elsewhere the record of his achievements and honors.

THE CANTABRIGIA CLUB of Cambridge, Mass., a flourishing organization of women, has just done an excellent work for its city. After arousing interest in bird-life and its protection, by a bird mass meeting, to deepen the interest and spread a knowledge of birds, it secured the services of Olive Thorne Miller to give a course of bird talks, in the large hall of the English High School, holding 600, and issued free invitations to all the teachers of the Cambridge schools. The course of ten talks was given mostly on consecutive days at 4.30 p. m., beginning on May 25, and was attended by several hundred interested and enthusiastic teachers, who at the close offered a set of resolutions warmly expressing their thanks to the Club, and their appreciation of the talks.

THE AUDUBON SOCIETY OF THE STATE OF NEW YORK, the organization of which in February, 1897, was noticed in the April 'Auk,' is inaugurating an active campaign in the interest of bird-protection throughout the State. Circulars recently issued by the Society include an 'Appeal to Boys,' 'The Wearing of Herons' Plumes or Aigrettes,' 'The Economic Value of Birds,' a reprint of Circular No. 17 of the U. S. Department of Agriculture on 'Bird Day in the Schools,' 'A Story for Little Women,' and a poster giving extracts from the laws protecting wild birds.

As a means of bringing its work to the attention of the teachers of public schools, the society secured from Mr. Charles R. Skinner, State Superintendent of Public Instruction, a letter addressed to the principals and teachers of public schools, which shows such appreciation of the importance of the subject of bird-study and bird-protection, that it is given here in full:

"I beg leave to call your attention to the excellent work of the Audubon Society, and to earnestly request that you exercise your influence to awaken in the minds of your pupils a greater love and care for 'our little brothers of the air.' The necessity for protecting our native birds is apparent to all who have given any thought to the subject, and I know of no better way than to arouse a healthy and humane sentiment among the children."

Copies of this letter, together with sets of the Society's circulars, have been distributed to over 1000 public schools, and it is hoped that an interest may be awakened which will result in the establishment of a Bird-Day in the schools."

That the good work is spreading broadly is evidenced by the following list of Audubon Societies from which we have received circulars or other announcements of their formation, all but the first two organized within the present year.

Massachusetts Audubon Society. Secretary, Miss Harriet E. Richards, Boston Society of Natural History, Berkeley St., Boston, Mass.

Pennsylvania Audubon Society. Secretary, Mrs. Edward Robins, 114 South 21st St., Philadelphia, Pa.

Audubon Society of the State of New York. Secretary, Miss Emma H. Lockwood, 243 West 75th St., New York City.

New Hampshire Audubon Society. Secretary, Mrs. Franck W. Batchelder, Myrtle Hill, Manchester, N. H.

Illinois Audubon Society. Secretary, Miss Emily Rumsey, 313 Huron St., Chicago, Ill.

Maine Audubon Society. Secretary, Miss Edith J. Boardman, Brunswick, Me.

Audubon Society of the District of Columbia. Secretary, Mrs. John Dewhurst Patten, 3033 P St., Washington, D. C.

Wisconsin Audubon Society. Secretary Miss Madge Anderson, 134 Twentieth St., Milwaukee, Wis.

New Jersey Audubon Society. Secretary, Miss Mary A. Mellick, Plainfield, N. J.

Audubon Societies are also organizing in Colorado, Rhode Island, and other States.

THE NEW YORK ZOÖLOGICAL SOCIETY was incorporated, by special act of the Legislature, April 26, 1895, "to establish and maintain a Zoölogical Garden in the City of New York, to encourage the study of Zoölogy, and to furnish instruction and recreation for the people"; and the Commissioners of the Sinking Fund were authorized by the same act to set apart lands for the uses of the Society. On March 24, 1897, the said Commissioners made an allotment of a tract of 261 acres in South Bronx Park to the Society, for the purposes of a Zoölogical Garden. The Society is to provide the original equipment of buildings and animals, and has begun to raise by subscription a fund of \$250,000 for this purpose. The encouragement already received indicates that the means needed will be promptly raised. A vast amount of time and labor has been expended on the plans of the grounds and buildings, and they will be submitted to experts — landscape gardeners, field naturalists and zoölogical garden experts — before final presentation to the Park Commissioners for adoption. It is expected that actual work on the grounds will soon begin, and in due time we may hope to see in Bronx Park one of the largest and best equipped zoölogical gardens in the world. The Society is fortunate in having secured Mr. William T. Hornaday as Director of the Gardens. The present office of the Society is 69 Wall St., New York City.





A. Gould & Co. Lithographers, Boston.

WESTERN FIELD SPARROW
(SPIZELLA PUSILLA ARENACEA)

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY

VOL. XIV.

OCTOBER, 1897

NO. 4.

THE WESTERN FIELD SPARROW *SPIZELLA* *PUSILLA ARENACEA* CHAMBERLAIN

BY CHARLES W. MERRIAM

Plate I.

THE WESTERN FIELD SPARROW, *Spizella pusilla arenacea* Chamberlain, 'The Auk,' was first brought to the attention of ornithologists in 1886¹ by Dr. Arthur P. Chadwick, who had secured two late autumn specimens collected at Lincoln, Nebraska. It was then known of the breeding plumage of the eastern bird, but two years later Dr. H. A. Merriam secured the first breeding specimens, all males, obtained by Dr. A. S. Rehn at Fort Pierre, South Dakota, and Valenciennes, Montana. These examples were found to be so unlike the eastern bird that Dr. Merriam was led to consider them as a distinct and designated it *Spizella arizonae* (Chamberlain). Subsequent material, however, proved it to be of little taxonomic importance, and it has since held this rank in the

The differences between the Western Field Sparrow and typical eastern bird are chiefly in the greater darkness

¹Auk, III, April, 1886, 248-249.

²Auk, V, Oct., 1888, 402-423.

THE BIRD BOOK



WESTERN FIELD SPARROW
(SPIZELLA PUSILLA ARENACEA)

A. J. REID, ILL.

THE AUK:

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OCTOBER, 1897.

NO. 4.

THE WESTERN FIELD SPARROW (*SPIZELLA*
PUSILLA ARENACEA CHADBOURNE).

BY CHARLES W. RICHMOND.

Plate III.

THE WESTERN FIELD SPARROW, illustrated in this number of 'The Auk,' was first brought to the attention of ornithologists in 1886¹ by Dr. Arthur P. Chadbourne, who characterized it from two late autumn specimens collected at Laredo, Texas. Nothing was then known of the breeding plumage or summer range of the bird, but two years later Dr. C. Hart Merriam described² three breeding specimens, all males, obtained by Mr. Vernon Bailey at Fort Pierre, South Dakota, and Valentine, Nebraska. These examples were found to be so unlike the eastern Field Sparrow that Dr. Merriam was led to consider the western form specifically distinct and designated it *Spizella arenacea* (Chadbourne). Subsequent material, however, proved it to be of only subspecific importance, and it has since held this rank in the 'Check-List.'

The differences between the Western Field Sparrow and the typical eastern bird are chiefly in the greater dimensions and

¹ Auk, III, April, 1886, 248-249.

² Auk, V, Oct., 1888, 402-403.

uniformly paler color of the former, with broader gray streak on the crown and almost completely gray ear-coverts. The tail is much longer, and the wings usually so, although in some individuals of the eastern bird this measurement nearly equals that of *arenacea*. The bill, as a rule, is somewhat larger in the western form, but not invariably so. The measurements of a typical western specimen and of an average eastern bird are given below:

	Wing.	Tail.	Tarsus.	Culmen.
<i>Spizella pusilla</i> . . .	2.45	2.35	.65	.33
<i>Spizella p. arenacea</i> . .	2.70	2.90	.72	.34

Texan and Mississippi Valley specimens of the Field Sparrow have a tendency to longer wings and tails than the eastern birds, but frequently without any corresponding paleness of plumage. Some of the Texan birds are, however, appreciably paler, but not enough so, and also too small, to refer to *arenacea*.

Worthen's Sparrow differs from both forms of the Field Sparrow in the total absence of a mesial gray crown stripe and brown post-ocular stripe, as well as in some minor details. The wings and tail are shorter than in *arenacea*, but longer than in average *pusilla*.

The geographical range of the Western Field Sparrow as defined in the last edition of the A. O. U. 'Check-List' is "Great Plains, from Texas to Montana and Dakota. Casual at New Orleans, La." The Louisiana specimen was shot in the winter of 1890-91, and was reported by Mr. Chapman to be a typical one (Auk, 1891, 318). Notwithstanding the rather extensive distribution of this form, little appears to be known of its habits or nesting, although we may safely consider them to be quite like those of the Field Sparrow. Specimens of the bird itself are not by any means numerous in collections.

Mr. J. P. N [orris]. has described eggs from Texas purporting to be those of this form¹ as indistinguishable "in size and general appearance" from those of *Spizella pusilla*. This record formed the basis of Mr. Davie's reference in his 'Nests and Eggs.' It

¹ Ornithologist and Oölogist, XIII, Dec. 1888, 188.

is almost certain, however, that true *arenacea* does not breed in Texas, and the eggs mentioned by Mr. Norris were doubtless those of the common Field Sparrow or of the slightly paler but equally small bird resident in some portions of that State. The eggs of true *arenacea* will probably be found to average somewhat larger than those of the eastern bird.

NOTES ON THE BIRDS OF FORT SHERMAN, IDAHO.

BY J. C. MERRILL,

Major and Surgeon, U. S. Army.

FORT SHERMAN is situated in the northern part of the State of Idaho in latitude $47^{\circ} 40'$, longitude $116^{\circ} 30'$, and at an elevation of a little less than two thousand feet. The Idaho-Montana boundary line, formed here by the divide of the Bitterroot Mountains, is about seventy miles distant due east; that of Idaho-Washington is about eleven miles west, and that of British Columbia about ninety-five miles north.

The fort is on the northern shore of the northwestern arm of Lake Coeur d'Alène, in the angle between the lake shore and the head of Spokane River, which is the outlet of the lake and empties into the Columbia about seventy-five miles north of west from the lake. The latter is nearly twenty-four miles in length, comparatively narrow in most parts, and its general trend is north and south. The Coeur d'Alène Mountains, north and east of the lake, are a continuation of the Bitterroot range; in them arises the Coeur d'Alène River, flowing into the southern end of the lake, and, still further south, the St. Joseph River forms the other principal tributary. The hills—they can hardly be called mountains—that encircle the lake are covered to the shores with a thick growth of pines and firs of two or three species, with tamaracks scattered throughout. Where streams flow into the lake there are often flats of a few acres in extent, subject to overflow in the

spring; here a growth of tules, water grasses, and willows, with a limited number of cottonwoods on the edges, form the only inviting spots for a considerable number of land birds that never from choice enter the surrounding pine forests, and a few marsh birds and Ducks also frequent them. A belt of cottonwoods extends along the Spokane River for some miles and affords a convenient route for many migrants. Except close along shore the northern part of the lake is very deep, and in the autumn most water birds soon find their way to the southern end where the marshy valley of the St. Joseph River offers congenial feeding and resting places. About every third winter the surface of the lake is frozen; as long as it is open a few Grebes, Gulls and Ducks remain, going to the always open Spokane River when forced to by the ice. A marsh of the character described is about a mile southwest of the fort and is sometimes referred to in this paper. About six miles to the north, a pine forest intervening, is the eastern end of the great Spokane prairie. Mica Peak, locally so-called, one of the highest mountains in the vicinity, is about eleven miles to the southwest, gradually rising from near the lake shore to a height of about three thousand feet above it; the summit is about a mile east of the Washington State line. Another and the true Mica Peak is about three miles further southwest; it is in Washington, and is a little higher than the Idaho peak of the same name.

In some respects the local climatic conditions resemble those of the Northern Cascade Range more nearly than those of any other part of the Rocky Mountains or its neighboring ranges in the United States. The winters usually are not severe and Chinook winds are frequent. The rainfall, including its equivalent in the heavy winter snowfall, is considerable and the large number of cloudy days adds to the faunal effect of the actual rain and snow. The avifauna is, as would be expected, essentially that of the Northern Rocky Mountains, but there is an element of Cascade Mountain forms, as shown by the presence of such species as *Xenopus*, *Troglodytes hiemalis pacificus*, *Parus rufescens*, *Hesperocichla*, and others.

The little collecting that has been done in Idaho was chiefly in the southern and central parts of the State and has been well

brought together by Dr. C. Hart Merriam in Number 5 of the 'North American Fauna' series of the Department of Agriculture.¹ This report enumerates 156 species and throws much light on the summer fauna of Southern and Central Idaho. The present paper may be considered as supplementing it as to the winter avifauna and that of the northern part of the State. Since the publication of Dr. Merriam's paper Prof. B. W. Evermann made a small collection in the Sawtooth range district in September, 1894, and has kindly allowed me to look over his MS. notes. Two male *Pipilos*, identified as probably *megalonyx*, is the first record of this species in Idaho.

The following observations were made from November, 1894, until December, 1896. One hundred and sixty-seven species are enumerated, of which fifty, to each of which an asterisk is prefixed, have not, so far as I am aware, been previously taken in Idaho. I desire to express my obligations to Mr. William Brewster for kindly identifying some of the species; his opinions are incorporated in the text.

* *Æchmophorus occidentalis*.—A single specimen taken.

* *Colymbus holboëllii*.—Resident but most common during migrations. A nearly completed nest was found in the marsh on May 18; when again visited on June 3 it contained four eggs, but was deserted, owing probably to the rapid fall of the lake level leaving it high and dry. The parents continued in the vicinity throughout the summer and probably bred again.

¹ One paper has been overlooked by Dr. Merriam in the preparation of his list. It has the somewhat misleading title of 'The Fauna of Montana Territory,' by J. G. Cooper, and may be found in the 'American Naturalist,' II, pp. 596-600; III, pp. 31-35; 73-84; also p. 224. The context shows that certain species were taken or observed in what is now the State of Idaho. Of such not included in the Merriam list are, to quote the names as given, *Falco columbarius*, *Turdus naevius*, *Sialia mexicana*, *Sciurus noveboracensis*, *Setophaga ruticilla*, *Sitta pygmæa*, *Parus rufescens*, *Curvirostra americana* var. *mexicana*, *Curvirostra leucoptera*, *Corvus caurinus*, *Columba fasciata*, *Ectopistes migratorius*. It may be remarked in regard to these species that the Water Thrush was undoubtedly the *notabilis* form; the Crossbill *L. curvirostra minor*, and the Crow *C. americanus*, and not what is now understood as *caurinus*. *Columba fasciata* was not satisfactorily identified.

Sciurus aurocapillus should also be added to the avifauna of Idaho, as Dr. Cooper states (Bull. N. O. C., II, 1877, p. 91) that it has been "recently recorded from Idaho." I do not know where this record is to be found.

* *Podilymbus podiceps*.—Common on the lake in spring and autumn.
Urinator imber.—Resident and quite common except in winter.

* *Larus argentatus smithsonianus*.—Several taken on the lake during fall and winter.

* *Larus delawarensis*.—An adult taken January 6, and several young in September; not rare during winter. I saw no Gulls on the lake during summer.

* *Larus philadelphia*.—One taken and several seen in November.

A small white Tern breeds about the lake, but I did not succeed in procuring any specimens for positive identification.

Phalacrocorax dilophus cincinatus.—Several Cormorants, probably of this form, were seen on September 19.

* *Merganser americanus*.—Common during fall and winter.

Merganser serrator.—A single specimen taken.

* *Lophodytes cucullatus*.—The most abundant of the Mergansers, frequenting especially the rivers, and in the autumn collecting in flocks of forty and fifty individuals.

Anas boschas.—The most common Duck in this vicinity, a few remaining throughout the winter.

Anas americana.—During the latter part of September this is one of the most common Ducks in the marshes at the southern end of the lake.

Anas carolinensis.—Quite common, especially during the migrations.

Anas cyanoptera.—Rare. A female with several young two or three days old seen June 11.

Spatula clypeata.—Common. Said to have been unusually abundant in the autumn of 1894. About twenty-five were seen about the fort on June 1; they were mostly paired and had perhaps been driven out of the St. Joseph marshes, where they breed, by the unusually high water.

* *Dafila acuta*.—Common in migrations.

* *Aix sponsa*.—Common summer visitor, especially abundant at the southern end of the lake during the early autumn.

* *Aythya collaris*.—Seems to be more common than the other 'Blue-bills,' one or both of which occur, but were not certainly identified.

* *Clangula islandica*.—Abundant throughout the winter. All the Golden-eyes seen by me were of this species, although the other doubtless occurs.

* *Charitonetta albeola*.—Common during winter.

* *Histrionicus histrionicus*.—Rare, but occasionally taken on the St. Joseph and Coeur d'Alène Rivers.

* *Erismatura jamaicensis*.—Not uncommon in spring and autumn.

Branta canadensis.—Common in spring, rare in autumn. The most abundant species of Goose, especially on the prairie and at the southern end of the lake. I have seen them as early as February 22, although the middle of March is the more usual time of their arrival. A few pairs nest near the lake, but much less frequently than a few years ago, owing to the increase of settlers. Very few Geese are seen during the fall flight

as at this season they, as well as many Ducks, pass south over the open prairie country about fifty miles west of the lake.

Hunters have told me that the White-fronted and Snow Geese are sometimes shot, but that they are decidedly rare.

Olor sp.?—In the spring Swans are sometimes quite common on the marshes bordering the rivers at the southern end of the lake and in the lake itself. I was unable to examine any specimens for identification.

* *Botaurus lentiginosus*.—Rather common in suitable localities about the lake.

Grus mexicana.—Not uncommon during the migrations, and a few pairs probably breed near the southern end of the lake.

Porzana carolina.—Not rare in the marshes; breeds.

Fulica americana.—Common, especially in autumn.

Phalaropus lobatus.—Occurs during the latter part of August and early in September on the lake, sometimes in great numbers, but passes through rapidly.

Recurvirostra americana.—A pair seen and one taken early in September.

Gallinago delicata.—Usually rather uncommon, but occurring in considerable numbers during the autumn of 1896. They appeared during the last week in August and were abundant until the middle of September, affording fine sport. A second flight of somewhat larger and darker birds appeared on October 22 and remained about two weeks, the last one being seen on November 5. I am inclined to think that the first flight was of birds breeding in the general vicinity, the second, of birds from more northern localities.

* *Macrorhamphus griseus*.—Five specimens, taken September 12 on the St. Joseph marshes, were decidedly of the eastern form.

Tringa maculata.—Common in 1896 from the last of August until early in October. Abundant on September 12, when about 125 were shot. Many were in flocks of considerable size, not a common habit with this species.

* *Tringa minutilla*.—Three taken August 15.

Ereunetes occidentalis.—One taken in company with the preceding.

Totanus melanoleucus.—A rather common fall migrant. One heard on June 20.

Totanus solitarius.—A young bird taken August 26.

* *Bartramia longicauda*.—Breeds not uncommonly on the prairie north of the fort. They begin to leave for the South about the twentieth of July.

Actitis macularia.—Common summer visitor. Several nests were found near the fort.

Numenius longirostris.—Not uncommon on the prairie, arriving during the latter part of March.

* *Squatarola squatarola*.—Four taken September 12 on the St. Joseph marshes.

* *Charadrius dominicus*.— Usually rare. A large flight passed through northern Idaho and eastern Washington from the 15th to 20th of September, 1896. This was so uncommon that the local papers had notices of their presence, with highly original accounts of the birds' usual haunts and habits.

Ægialitis vocifera.— A few pairs breed on the prairie near the Spokane River.

Dendragapus obscurus richardsonii.— Occasionally found about the fort, but more common a few miles away, where they are not hunted so much. Breeds from lake level to the tops of the surrounding mountains. On July 1, near the base of Mica Peak, a brood of nearly grown young was seen; the next day, just below the summit, a female with a brood of chicks was found; the latter at once scattered in the grass and the parent, to obtain a better view of what was going on, flew up and alighted on the pack of one of the mules.

Dendragapus franklinii.— In the autumn of 1894 about forty specimens of this beautiful Grouse were brought in for sale by a ranchman, who said that he killed them on Canfield's Butte, a high hill a short distance northeast of the fort. While hunting near the southern end of Lake Pend d'Oreille the settlers told me that the 'fool hen' was rather common in the surrounding woods, but I did not happen to see any.

Bonasa umbellus togata.— Exceedingly abundant, much more so than I have ever found any form of the Ruffed Grouse. Many are killed by ranchmen and others over dogs trained to tree the birds, and the local market is plentifully supplied. One man told me that he no longer cared for them on his own table, but that he still fed his dogs on them!

Pediocætes phasianellus columbianus.— Quite common in all suitable localities, particularly about ranches on the extensive prairie north of the fort. In the winter it penetrates into the pine woods for considerable distances, passing the nights and the greater portion of stormy days in the trees.

Zenaidura macroura.— Not common, but generally distributed in the vicinity.

Cathartes aura.— A few are seen at intervals during the summer, arriving about the middle of April and leaving in September.

Circus hudsonius.— Not uncommon in autumn.

Accipiter velox.— One taken May 15.

Accipiter atricapillus.— Rather common during the migrations and winter, and probably breeds, as I have taken a specimen as late as May 30. Especially abundant during the early part of the winter of 1896-97, many being killed, while attacking chickens, by ranchmen and others. It may be remarked that Snowy Owls were unusually common about the same time, and that a specimen of *Falco rusticolus* was shot at Spokane, Wash., about twenty-five miles distant.

Buteo swainsoni.— A young bird taken September 14.

* *Archibuteo lagopus sancti-johannis*.—Occasionally seen in early spring and late autumn.

Aquila chrysaetos.—Occurs sparingly throughout the year.

Haliaeetus leucocephalus.—A few pairs breed about the lake. An adult seen on February 5.

Falco mexicanus.—Rare; taken in September.

* *Falco richardsonii*.—Of a male taken August 20 Mr. Brewster remarks: "This specimen is unusually dark and richly colored," but the wing markings were typical of the species. A young female was taken October 1.

Falco sparverius deserticolus.—The Sparrow Hawk arrives early in April and is common by the 15th–20th; breeds. With the exception of this species and the Goshawk and Osprey, Hawks are remarkably scarce about Fort Sherman, although apparently there is an abundant supply of food at all seasons.

Pandion haliaetus carolinensis.—First observed April 25 and frequently seen thereafter during the summer.

Asio wilsonianus.—A single specimen examined.

Asio accipitrinus.—This Owl is frequently flushed on the prairie and marshes in the autumn.

* *Nyctala tengmalmi richardsoni*.—Two fine specimens are in Mr. Shallis's local collection which were taken early in the spring of 1894 on the prairie about seven miles from the fort. These, and a third specimen brought to him some years ago, are the only ones Mr. Shallis has seen.

* *Nyctala acadica*.—A specimen taken January 19; its stomach contained two *Hesperomys*. During the spring its notes are frequently heard at night in the deep woods bordering the lake.

Megascops asio subsp.?—Screech Owls were occasionally heard in and about the fort, doubtless the *macfarlanei* form. They were quite rare, apparently.

Bubo virginianus subarcticus.

Bubo virginianus saturatus.—Both forms of the Great-horned Owl occur here commonly, and, judging from the specimens I have examined, in about equal numbers.

Nyctea nyctea.—Not uncommon in some winters, but irregular and uncertain. In December, 1896, there was a general migration of Snowy Owls into northern Idaho, Oregon and Washington and dozens were killed.

* *Glaucidium gnoma*.—Not uncommon and a resident.

* *Coccyzus americanus occidentalis*.—One seen July 30, 1895.

Ceryle alcyon.—Common during summer. A few pass the winter but most return from the South about the middle of April.

Dryobates villosus hyloscopus.—Abundant during winter, and more often seen at that season than all other Woodpeckers combined. Females were more common than males in the proportion of at least four or five to one. A series of specimens are of greater size than the usual average of

this bird. Cabanis's Woodpecker is here very unsuspicious, in marked contrast to its behavior in some other regions. After the first of March they are much less common and they breed but sparingly near the fort. Two nests found June 15 contained young, a late date.

Dryobates pubescens homorus.—Rather uncommon resident, breeding sparingly. Specimens taken here differ from all of the recognized forms in some respects.

Xenopicus albolaryvatus.—A rare resident.

Picoides arcticus.—A fairly common resident, especially on the higher parts of the hills, where in winter I have seen many nesting excavations undoubtedly made by this bird, which shows a marked partiality for locating them near the base of slender pine stubs. Mr. Brewster informs me that the bills of specimens taken at Fort Sherman are longer and slenderer than in eastern examples, but less so than in the series I took at Fort Klamath, Oregon.

* *Sphyrapicus varius nuchalis*.—A few pairs breed among the cottonwoods bordering the lake near its outlet and along the river.

Ceophloeus pileatus.—A rather common resident, more plentiful in the deep woods.

Melanerpes torquatus.—Arriving early in May, Lewis's Woodpecker soon becomes common and is generally distributed, breeding in cottonwoods as well as in pines.

Colaptes cafer.—Common summer visitor arriving late in March, though a few remain throughout the winter. Breeds from lake level up to the summit of Mica Peak. Dr. Allen, in the map accompanying his paper on the Flickers,¹ places northern Idaho in the habitat of *C. auratus cafer*, or *hybridus*, as it was formerly called; but all the specimens taken at Fort Sherman, both breeding and migrating birds, were pure *cafer*.

* *Chordeiles virginianus*.—Arriving about the first of June, few are seen until the 12th or 15th, when they suddenly become common, and so remain until early in August, when more arrive from the north. They are abundant until the end of the month, when most leave, a few stragglers being seen until the middle of September.

In regard to some skins collected here Mr. Brewster writes: "This series, as a whole, seems to me to be referable to *virginianus*, although two or three of the females have too much gray on the back and wings to be typical. The male, on the other hand, is a typical *virginianus*."

* *Chaetura vauxii*.—This Swift arrives early in May and may be seen almost daily during the month, generally singly. About July 20 they again appear and pass rapidly to the south, though I have seen one as late as August 31. While none were observed during the breeding

¹ 'The North American Species of the Genus *Colaptes*,' etc. Bull. Am. Mus. Nat. Hist., IV, map facing p. 24.

season I have little doubt that some remain, as late in May I have watched them apparently breaking off dead twigs near the tops of high cottonwoods, though this may have been in play. This, and the western Montana record in Bendire's 'Life Histories' (Vol. II. p. 183), considerably extend to the eastward the known range of this species. I have frequently seen Swifts along the Yellowstone River in Montana but have been unable to secure any for identification.

• *Trochilus alexandri*. — Fairly common late in May, especially about the low, lavender-colored blossoms of the camass. A few pairs remain to breed.

• *Selasphorus rufus*. — A common spring migrant, probably breeding. Found most frequently about blossoms of cherry trees in the yards about the officers' quarters. I have rarely seen this Hummer outside the fort, or the other two within it.

• *Stellula calliope*. — The most common of the Hummers at Fort Sherman, both during the spring migration and the nesting season, their arrival in both years coinciding with the first blossoming of the wild hawthorn.

A good many Hummers, probably of the three species, pass through to the south during the latter part of August.

Tyrannus tyrannus. — Arriving during the last week in May, the King-bird at once becomes fairly common among the cottonwoods bordering the river, and in which it nests.

Tyrannus verticalis. — Rare; but a pair or two breed each year near the fort.

Contopus borealis. — Breeds sparingly at a height of several hundred feet above lake level.

Contopus richardsonii. — Very common, both in pine woods and in cottonwoods bordering the river.

• *Empidonax hammondi*. — Northern Idaho must be near the center of abundance of this Flycatcher, and it is far more plentiful here than I have found it to be in Montana and Oregon. Arriving early in May, its habits here are somewhat peculiar, for it is as common among young cottonwoods and willows along the river and in and near swamps — just such places as *E. traillii* haunts — as in dry woods among pines, in which it is generally seen in the higher branches. It breeds in the latter situations, and I also took a good series of nests in young cottonwoods and aspens, some not more than two or three feet above the ground or water. When in pines the nest is usually thirty or forty feet from the ground, saddled on a horizontal dead branch several feet from the trunk, and is much like a *Contopus* nest. When placed in a young cottonwood the nest is more like that of *E. wrightii*, near the ground and generally against the trunk. I found Hammond's Flycatcher to be by no means as shy as other observers have noted; in fact, it is here one of the most common and, for an *Empidonax*, conspicuous of the summer

visitors, its notes being heard almost everywhere. Of a number of sets of eggs collected at Fort Sherman none were entirely unspotted but a majority were marked at the larger end, more or less distinctly, with delicate light brown dots.

Empidonax wrightii. — Only a single specimen taken; this was on May 17.

* *Otocoris alpestris leucolæma*. — A typical female taken September 28, on the prairie. This was one of a number of Horned Larks collected on the same day and at the same place, all the others being of the next form.

* *Otocoris alpestris merrilli*. — Careful search failed to reveal the presence of either form of Horned Lark during the winter, though it is probable that *leucolæma* occasionally occurs about ranch yards at that season. The present one returns in March, and during spring and summer is very common on the prairie, but none were seen at any time about the post gardens and adjoining fields, apparently equally suited to their habits. When grouse shooting in August these Larks were often flushed in corn and potato fields on the prairie where they sought shelter from the intense heat of the sun. Later they are found in the open prairie, stubble or ploughed land, collecting in flocks of twenty, forty or more.

Referring to a series of skins collected here, Mr. Brewster writes: "Specimens from Fort Sherman appear to be referable to *O. a. merrilli* although they are not typical, having the dorsal streaking much less pronounced than in Klamath birds. The autumnal examples are also more olivaceous above than the latter."

Pica pica hudsonica. — Not uncommon in winter, a few individuals making daily visits to the back yards of the quarters and to the garbage pile a few hundred yards outside the fort. There was a decided increase in their numbers about the middle of February, but they were rarely seen after March, and none appear to breed near the fort.

Cyanocitta stelleri annectens. — Fairly common about the fort in spring and autumn, a few passing the winter. It does not appear to breed at lake level but several pairs were seen early in July on Mica Peak, first at an elevation of about 1500 feet above the lake and thence upward to the summit. These jays are typical *annectens*.

Perisoreus canadensis capitalis. — Rather common resident. A pair was seen collecting building material for a nest in a young pine on April 17, near Hoodoo Lake, about forty miles from the fort, but I was unable to return to secure it.

Mr. Brewster informs me that some skins sent him were much darker than Colorado specimens and had the dark occipital band broader.

Corvus corax sinuatus. — Probably resident; seen occasionally during the winter.

Corvus americanus. — Common during the migrations, a few pairs breeding near the edge of the prairie.

Nucifraga columbiana. — Probably owing to the identity of their principal winter food this species and the Crossbill were coincidentally abundant during the winter of 1894-95, very rare during that of 1895-96, and again common during so much of the winter of 1896-97 as I was at the fort, these periods being marked by the abundance or failure of the crop of cones of a common pine, upon the seeds of which both species chiefly fed. At other seasons Clark's Nutcracker appeared irregularly, probably wandering down from the surrounding hills, as, early in July, I saw several families on the higher parts of Mica Peak. For the first time in my experience in the Northwest I found this usually shy and suspicious bird to be quite tame in winter, visiting the yards of the houses for such scraps as were to be found; and they were especially fond of pecking at bones left on the surface of the snow by dogs. Several were caught by cats and one by a soldier in his hands.

(*To be concluded.*)

BIRDS OBSERVED ON A COLLECTING TRIP TO BERMUDEZ, VENEZUELA.

BY WILLIAM HENRY PHELPS.

*With Critical Notes and Descriptions of Two New Species, by Frank
M. Chapman.*

IN THE year 1877 Dr. Adolfo Ernst¹ of Caracas divided Venezuela into four avifaunal districts: Eastern, Central, Cordilleran, and Lowland. The first comprises the group of mountains lying in the northeastern corner of the country, and is separated from the central district by the low country about Barcelona. The central district comprises the mountainous region along the northern coast, as far west as Barquisimeto. The high mountains to the west of this point are cordilleran and have affinities with the fauna of Colombia. The lowland region comprises all of that rolling country of plains and forests lying between this mountainous region of the north and the Orinoco River. The birds south of the river are Brazilian in their affinities and are

¹ Estudios sobre la Flora y Fauna de Venezuela. Caracas. 1877, p. 287.

not comprised in any of the foregoing divisions. This separation into districts was chiefly based on collections made by Mr. A. Goering¹ over a large part of the country. To that enterprising collector we are indebted for almost all the knowledge we have of the birds of this interesting country, even up to the present day.

It is the first of these districts, the eastern, that most interests us, for it was in the mountains of the State of Bermudez that I studied the birds during a few weeks in the summer of 1896. I chose this locality because it seemed to present, besides a rich avifauna, special problems of interest. Perhaps the most interesting of these was the relation of the birds of the mainland to those of the islands of Trinidad and Margarita.

The island of Trinidad lies off the eastern coast and is distant but seven miles from the mainland. The birds of this island are perhaps better known than those of any other part of the tropics. This is because of its accessibility, its rich avifauna and its offering of comforts to the traveller which are rare in tropical South America. In marked contrast is the scanty knowledge of the birds of the adjoining mainland, of that whole group of mountains comprised within the territory designated, by Dr. Ernst, as the eastern district.

Lying off the northern coast, seventeen miles from the mainland, is the island of Margarita, the avifauna of which was a sealed book until Lieut. Wirt Robinson² visited it in the summer of 1895. In size the island is somewhat smaller than Trinidad but in aspect there is little resemblance, it being for the most part desert.

Two collections, only, have been made on the mainland adjoining these two islands. In the winter of 1866-67, Mr. A. Goering made a trip of several months, penetrating the interior,

¹ On Venezuelan Birds collected by Mr. A. Goering. By P. L. Sclater and Osbert Salvin. P. Z. S., 1868, pp. 165-173, and 626-632; 1869, pp. 250-259; and 1870, pp. 779-788.

² An Annotated List of Birds observed on the Island of Margarita, and at Guanta and Laguyra, Venezuela. With critical notes and descriptions of new species by Charles W. Richmond. Proc. U. S. Nat. Mus., XVIII, pp. 649-685, Pl. XXXIII.

from Carúpano, as far as Caripe. Unfortunately a large part of this collection was lost in transportation. Mrs. H. H. Smith¹ spent ten days at Carúpano and El Pilar in November, 1891.

I chose Cumaná as my starting point, from where I penetrated the interior almost to the Orinoco lowlands.

Cumand.—Only three days were spent in collecting at this place, August 11, 12, and 14. The character of the soil and vegetation of the country lying between the water's edge and the summit of the range of hills, which lies about five miles back from the coast, is totally different from what is found throughout the mountainous interior. Although in this part of Venezuela it rains nearly every day from June to October, this strip of land along the coast seems to be freer from the rains and has the appearance of a dry desert, owing to the character of the rock and soil. There are no forests but in their place is cactus scrub extending for miles in every direction, extremely difficult to penetrate except along the beaten paths. Besides the cactus there is little vegetation except a stunted species of tree. The Manzanares River flows across this plain and into the sea at Cumaná. Along the very banks of this river are cocoanuts, bamboos and large trees, but these only grow close to the water.

As might be expected, this region has an avifauna peculiar to itself. The following species seem to be characteristic of what may be called the coastal zone:

Cardinalis phœniceus
Euethia omisssa

Doleromya fallax
Scardafella squamosa

Cumanacoa.—Twenty miles into the interior as the bird flies, and twice that by the mule trail, lies the village of Cumanacoa. A greater contrast to the coast region could hardly be imagined. The town lies in the broad valley of the Manzanares River, where, instead of a parched soil bearing nothing but cactus, there is a rich black soil and a most luxuriant tropical vegetation. Large plantations of sugar cane occupy this fertile valley. Bamboo forests, the paradise of birds, lie in every direction. Bananas grow in profusion, while the cocoanut is seen here for

¹ Notice of some Venezuelan Birds collected by Mrs. H. H. Smith. By Dr. J. A. Allen. Bull. Am. Mus. Nat. Hist., 1892, pp. 51-56.

the last time, as it cannot exist at any great distance from the sea. Almost completely enclosing this valley are hills and mountains, rising to a height of several thousand feet. These present a peculiar appearance as many of them are completely clothed by long grass with no traces of forest. Others are heavily wooded even to their summits. Cumanacoa being at an altitude of about 1000 feet has an agreeable climate. The nights are cool enough to make a blanket desirable while the heat is not oppressive during the day.

As might be expected, many of the birds inhabiting the coastal scrub were here absent. Many species were also found here which were not met with south of the watershed of the Caribbean and Gulf of Parian waters. This height of land lies about fifteen miles south of Cumanacoa. My stay in this locality was two weeks, from June 29 to July 12.

San Antonio.—Beyond the watershed to the southeast, the same distance from Cumanacoa as the latter is from Cumaná, is San Antonio. Instead of a broad, flat valley planted with cane, there is a small village nestled in a narrow valley with mountains rising precipitously on both sides. A rapid stream flows on its way to the Gulf of Paria instead of to the Caribbean Sea. The sides of the mountains are planted with coffee, the chief wealth of the region. A few miles to the west is Mt. Turumiquire, the highest peak in this group of mountains. San Antonio itself is somewhat higher than Cumanacoa, probably about 1500 feet.

The avifauna, although quite similar to that of Cumanacoa, seems to have a strong infusion of species from the south; from the Orinoco lowlands. These have followed up the Guarapiche River, but go no further north than its headwaters. As would be expected, the number of species peculiar to this southern watershed is much greater than the number found in Cumanacoa and not in San Antonio. My stay in San Antonio was twenty days, from July 14 to August 2.

Guanaguana and Caripe.—From San Antonio I took a trip of five days, August 3–7, to these towns, which lie to the southeast and east. The special object of this trip was to visit the famous Guacharo cave of Humboldt, where that traveller discovered the remarkable bird *Steatornis caripensis*. Thus I reached the same

point as did Goering in 1866 but by a different route. This little side trip brought out, among other things, the very local distribution of some tropical species. This was especially shown by the abundance of *Zonotrichia pileata* in the valley of Caripe. This species was wholly absent from the savannas about San Antonio, although the character of the country in the two places was identical.

Faunal position of Margarita.—The birds of the larger part of Margarita, which island lies directly opposite Cumaná, are similar to those of the coastal zone, as the island possesses the same characteristics as the country about Cumaná. It seems, however, that many of the forms inhabiting Margarita have differentiated, since Mr. Charles W. Richmond has described no fewer than eleven of the species brought back by Lieut. Robinson as new to science. Most of them are birds of the cactus scrub, which seem to be bleached out representatives of the species inhabiting the adjacent mainland. Since these specimens were collected during the summer, and as hitherto no summer skins have existed from the mainland for comparison, it is interesting to compare my Cumaná skins, collected at the same season, with them. Owing to the small number of specimens collected at Cumaná a satisfactory comparison cannot be made. However, through the kindness of Lieut. Robinson, I was enabled to examine many of his skins and to compare them with mine. Although Mr. P. L. Sclater¹ doubts the validity of the Margaritan species I believe that good series from both the island and Cumaná will show distinctive characters, although these will be less marked than was supposed. The closeness to the mainland forms would indicate a no very remote separation of the island from the continent, and that some of the species are gradually assuming distinctive characters.

If, then, a comparison of good series from both Margarita and Cumaná or Carúpano establishes the validity of these insular forms, a new district, the Margaritan, must be added to those already defined by Dr. Ernst.

Faunal position of Trinidad.—In working over my skins the collections made in Trinidad by Mr. Frank M. Chapman were at

¹ Ibis, 1897, III, pp. 282-284.

my disposal, through the kindness of Dr. J. A. Allen, Curator of birds in the American Museum of Natural History, and I was therefore enabled to make direct comparisons of the specimens from the island with mine from the mainland. As a result I have been able to greatly reduce the number of forms hitherto supposed to be confined to Trinidad, so bringing the island and mainland into still closer faunal connection.

Mr. Chapman,¹ after pointing out the close geographical, geological and faunal relation of the island to South America, says (p. 7), " . . . it is therefore of special interest to note the effects of this recent insulation on the birds of the island. Unfortunately we have not as yet sufficient exact data from the adjoining main to make a satisfactory comparison, but as before stated, the relationships of the birds of the island to those of the continent are remarkably close. As far as we at present know the following species and subspecies of birds are peculiar to Trinidad or to Trinidad and Tobago :

<i>Merula xanthosceles.</i>	<i>Basileuterus vermivorus olivascens.</i>
<i>Cyclorhis flavipectus.</i>	<i>Lanio lawrenceii.</i>
<i>Chlorospingus leotaudi.</i>	<i>Sporophila lineola trinitatis.</i>
<i>Platyrhynchus mystaceus insularis.</i>	<i>Rhamphocænus melanurus trinitatis.</i>
<i>Myrmeciza longipes albiventris.</i>	<i>Amazilia erythronota.</i>
<i>Momotus swainsoni.</i>	<i>Pipile pipile.</i>

"Most of these birds are simply insular representatives of mainland species to which they are closely allied."

Five of these twelve forms I found to correspond with my examples from the mainland and so they must be eliminated from the list of peculiar Trinidad species. These are :

<i>Cyclorhis flavipectus.</i>	<i>Basileuterus vermivorus olivascens.</i>
<i>Myrmeciza longipes albiventris.</i>	<i>Rhamphocænus melanurus trinitatis.</i>
	<i>Amazilia erythronota.</i>

¹ On the Birds of the Island of Trinidad. Bull. Am. Mus. Nat. Hist., 1894, VI, pp. 1-86.

A sixth form, *Playtrhynchus mystaceus insularis*, was found by Lieut. Robinson at Laguayra, so there are now but six¹ forms left which as yet have not been found on the continent. I doubt if these will long remain peculiar to Trinidad, and I believe that as the birds of the nearby mainland become better known, those few remaining species will gradually be eliminated.

As the distinctness of the Trinidad avifauna is reduced by the occurrence of these forms on the mainland, so is the distinctness of the Eastern District of Dr. Ernst increased. This district was first recognized by the occurrence of many birds from the Guianas and Brazil which did not seem to occur further westward in Venezuela. If further study in other parts of Venezuela shows that the above mentioned subspecies are restricted to the northeastern part of the country, and to Trinidad, then there is added the evidence that, in addition to these species from the southeast, several forms attain subspecific rank in this district.

I give here a list of the birds observed; all those not marked with a * are represented in my collection by skins. Letters following the names indicate the localities where the species was found; thus C = Cumaná; CC = Cumanacoa; S = San Antonio; G = Guanaguana; Ca = Caripe.

Turdidæ.

1. *Catharus aurantiirostris* (Hartlaub), S, Ca.
2. *Merula albiventris* (Spix), S.
3. *Merula gymnophthalma* (Cab.), CC, S.
4. *Mimus gilvus* (Vieill.), S, C.
5. *Poliophtila leucogastra* (Max.), C.
7. *Thryophilus rufalbus cumanaensis* (Licht.), CC.
8. *Troglodytes rufulus* Cab., CC, S.

Mniotiltidæ.

9. *Compsothlypis pitayumi* (Vieill.), S.
10. *Basileuterus vermivorus olivascens* Chapm., S.

Cærebidæ.

6. *Thryothorus rutilus* Vieill., CC, S.
11. *Cæreba luteola* Cab., CC.
12. *Arbelorhina cærulea* (L.), S.
13. *Dacnis plumbea* (Lath.), C.

¹ Since the paper above quoted was written Mr. Chapman has described *Synallaxis carri* from Trinidad (Bull. Am. Mus. Nat. Hist., 1895, VII, p.32). This species has not been found on the mainland.

Vireonidæ.

14. *Cyclorhis flavipectus* *Scl.*,
CC, S.
15. *Vireo chivi agilis* (*Licht.*),
CC, S.
16. *Hylophilus flavipes* *Lafr.*,
CC, S.
17. *Hylophilus aurantiifrons*
Lawr., C, S, G.

Hirundinidæ.

18. *Atticora cyanoleuca* (*Vieill.*),
Ca.
19. *Stelgidopteryx uropygialis*
(*Lawr.*), CC, S.

Procnidæ.

20. *Procnias tersa occidentalis*
(*Scl.*), S.

Tanagridæ.

21. *Euphonia crassirostris* *Scl.*,
CC, S, Ca.
22. *Euphonia trinitatis* *Strickl.*,
S.
23. *Calliste cayana* (*L.*), S.
24. *Calliste desmaresti* *Gray*, S.
25. *Calliste guttata* (*Cab.*), Ca.
26. *Tanagra cana sclateri* (*Berl.*),
CC, S.
27. *Tanagra cyanocephala sub-*
cinerea (*Scl.*), Ca.
28. *Ramphocelus jacapa magni-*
rostris (*Lafr.*), CC, Ca, S.
29. *Piranga hæmalea* *S. & G.*, S.
30. *Piranga ardens* (*Tsch.*), S.
31. *Phænicothraupis rubra*
(*Vieill.*), CC.
32. *Tachyphonus luctuosus*
Lafr., CC.
33. *Tachyphonus rufus* (*Bodd.*),
CC, S.
34. *Saltator albicollis* *Vieill.*, S.
35. *Saltator olivascens* *Cab.*,
C, CC.

36. *Schistochlamys atra* (*Gm.*)
S, Ca.

Fringillidæ.

37. *Cardinalis phœniceus* *Bp.*, C.
38. *Guiraca cyanea* (*L.*), S.
39. *Spinus cucullatus* (*Swains.*),
S.
40. *Spinus psaltria columbianus*
(*Lafr.*), S.
41. *Sporophila grisea* (*Gm.*), CC,
S.
42. *Sporophila gutturalis* (*Licht.*),
CC, S.
43. *Sporophila minuta* (*L.*), CC,
S.
44. *Volatinia jacarina splendens*
(*Bp.*), CC, S.
45. *Euethia omissa* (*Jard.*), C.
46. *Zonotrichia pileata* (*Bodd.*),
Ca.
47. *Ammodramus manimbe*
(*Licht.*), S, Ca.
48. *Embernagra striaticeps con-*
rostris (*Bp.*), CC, S.
49. *Emberizoides macrurus* (*Gm.*),
S, Ca.

Icteridæ.

50. *Ostinops decumanus* (*Pall.*),
CC.
51. *Cassicus persicus* (*L.*), S.
52. *Icterus auricapillus* *Cassin*, S.
53. *Icterus xanthornus* (*Gm.*),
C, CC.
54. *Icterus vulgaris* *Daud.*, G.
55. *Sturnella magna meridionalis*
(*Scl.*), S.
56. * *Quiscalus lugubris*
(*Swains.*), C.

Corvidæ.

57. *Xanthura cæruleocephala*
(*Dubois*), CC, S.

Tyrannidæ.

58. Sayornis cineracea (*Lafr.*),
S.
59. Fluvicola pica (*Bodd.*), C.
60. Todirostrum cinereum (*L.*),
C, CC.
61. Colopterus pilaris *Cab.*, CC,
S.
62. Mionectes olivaceus *Lawr.*,
Ca.
63. Mionectes oleagineus (*Licht.*),
S.
64. Leptopogon superciliaris
Cab., Ca.
65. Capsiempis flaveola (*Licht.*),
CC.
66. Ornithion pusillum (*Cab.*),
CC, S.
67. Elainea gaimardi (*d'Orb.*),
CC.
68. Elainea pagana (*Licht.*), CC,
S.
69. Elainea albiventris *Chapm.*,
sp. nov., CC.
70. Legatus albicollis (*Vieill.*),
CC.
71. Sublegatus glaber *Scl. &*
Salv., C.
72. Myiozetetes texensis
(*Giraud*), CC.
73. Myiozetetes cayennensis
(*L.*), S.
74. Rhynchocyclus sulphures-
cens (*Spix*), S.
75. Pitangus derbianus rufi-
pennis (*Lafr.*), C, CC, S.
76. Myiodynastes audax (*Gm.*),
CC.
77. Myiobius navius (*Bodd.*),
CC, S, G.
78. Contopus brachytarsus (*Scl.*),
S.
79. Myiarchus tuberculifer
(*d'Orb. & Lafr.*), S.

80. Myiarchus tyrannulus (*Müll.*),
C, CC, S.
81. Tyrannus melancholicus
satrapa (*Licht.*), S.
82. Milvulus tyrannus (*L.*), C, S.

Pipridæ.

83. Chiroxiphia lanceolata (*Wag-
ler*), CC.

Cotingidæ.

84. Tityra cayana (*L.*), S.
85. Pachyrhamphus cinereus
(*Bodd.*), G.
86. Pachyrhamphus polychrop-
terus cinereiventris (*Scl.*), CC, S.

Dendrocolaptidæ.

87. Synallaxis albescens *Temm.*,
CC, S, Ca.
88. Siptornis subcristata *Scl. &*
Salv., Ca.
89. Phacellodomus inornatus
Ridgw., G.
90. Sittasomus phelpsi *Chapm.*,
sp. nov., Ca.
91. Dendroornis susurrans (*Jard.*),
CC.
92. Xiphorhynchus venezuelen-
sis *Chapm.*, CC.

Formicariidæ.

93. Thamnophilus major albicris-
sus (*Ridgw.*), CC.
94. Thamnophilus doliatus (*L.*),
C, CC, S.
95. Thamnophilus cirrhatus
(*Gm.*), G.
96. Formicivora intermedia *Cab.*,
CC, S.
97. Myrmeciza longipes albiven-
tris *Chapm.*, CC, S.
98. Rhamphocœnus melanurus
trinitatis (*Less.*), CC, S.

Trochilidæ.

99. *Glaucis hirsutus* (Gm.), CC,
S.
100. *Phaëthornis augusti*
(Bourc.), S.
101. *Phaëthornis guyi* (Less.),
CC.
102. *Campylopterus ensipennis*
(Swains.), CC.
103. *Lampornis violicauda*
(Bodd.), CC.
104. *Thalurania refulgens* Gould,
S.
105. *Floricola longirostris*
(Vieill.), CC, S, G.
106. *Doleromya fallax* (Bourc.),
C.
107. *Agyrtria chionipectus*
(Gould), CC.
108. *Amazilia erythronota*
(Less.), CC, S.
109. *Chrysuronia ænone* (Less.),
CC.

Caprimulgidæ.

110. **Chordeiles acutipennis*
(Bodd.), C.
111. *Nyctidromus albicollis*
(Gm.), CC.

Steatornidæ.

112. **Steatornis caripensis*
Humb., Ca.

Picidæ.

113. *Picumnus obsoletus* Allen,
CC.
114. *Ceophlæus lineatus* (L.),
CC.
115. *Chloronerpes rubiginosus*
(Swains.), S.
116. *Melanerpes subelegans* (Bp.),
C, CC.

Galbulidæ.

117. *Galbula ruficauda* Cuv., CC.

Alcedinidæ.

118. *Ceryle americana* (Gm.), C,
CC, S, Ca.
119. **Ceryle amazona* (Lath.),
CC, S.

Cuculidæ.

120. *Crotophaga ani* L., CC, S.
121. **Diplopteryx nœvius* (L.),
S, Ca.
122. *Piaya cayana* (L.), CC.

Psittacidæ.

123. *Conurus æruginosus* (L.),
CC, S.
124. *Pionus sordidus* (L.), S.
125. *Psittacula guianensis*
(Swains.), C.

Strigidæ.

126. *Asio mexicanus* (Gm.), S.
127. *Glaucidium phalænoides*
(Daud.), CC.

Cathartidæ.

128. **Cathartes aura* (L.), C, CC,
S.
129. **Catharista atrata* (Bartr.),
C, CC, S.

Falconidæ.

130. *Ictinea plumbea* (Gm.), S.
131. *Elanoides forficatus* (L.), S,
CC.
132. *Asturina magnirostris* (Gm.),
CC.
133. *Falco sparverius* (L.), S, CC,

Columbidæ.

134. *Engyptila erythrorothorax*
(Tem.), CC, S.
135. *Scardafella squamosa*
(Tem.), C.
136. *Columbigallina rufipennis*
(Bp.), CC, S.
137. **Columbigallina passerina*
(L.), C, CC, S.

- | | |
|---|--|
| <i>Tyrannidae.</i> | 141. Gallinago frenata (Licht.),
S. |
| 35. Euphonia
sonnini
(Temm. - CC. S.) | <i>Ardeida.</i> |
| <i>Charadriidae.</i> | 142. Ardea cyanura (Vieill.), C. |
| 39. Egialitis collaris (Vieill.),
C. | <i>Pelecanida.</i> |
| <i>Scolopacidae.</i> | 143. *Pelecanus fuscus L., C. |
| 140. Actitis macularia (L.), C.
CC. S. | <i>Laridae.</i> |
| | 144. *Phaethusa magnirostris
(Licht.), C. |

I shall conclude with notes on some of the more interesting of the foregoing species by Mr. Frank M. Chapman, Assistant Curator of the Department of Ornithology and Mammalogy in the American Museum of Natural History, and with a few annotations. I wish to express my thanks to Mr. Chapman for his kindness in looking over the collection and in making the notes which follow.

Catharus aurantiirostris (Hartlaub). This very interesting bird was found at San Antonio and at Caripe but it was by no means common. It seems out of place in the tropics, where most birds are such weak singers, for it has a song which for sweetness rivals that of any of our Thrushes. It is very high and musical, and is heard only along some stream in the deepest woods of the mountain sides.

[*Thryophilus rufalbus cumanensis* (Licht.).

Troglodytes cumanensis LICHT. Nomencl. Av. 1854, 34

Thryophilus rufalbus castanotus RIDGW. Proc. Bost. Soc. N. H., 1888, p. 386.

Four adults have slightly smaller bills than two *Parus spectabilis* labelled by Mr. Ridgway *Thryophilus rufalbus castanotus*, but in other respects closely agree with them.

Lichtenstein's type of *cumanensis* came from Cartagena and as specimens from both east and west of the type locality agree with each other it is more than probable that they would also resemble the type. I have therefore taken the name of *cumanensis* for the Colombian form of *Thryophilus rufalbus*.—F. M. C.]

Very common in the underbrush in the mountain woods of the Cumanacoa valley.

Basileuterus vermivorus olivascens Chapm. Common in San Antonio in the underbrush, especially near water.

[Four specimens agree with a series of eight examples, including the type, from Trinidad.—F. M. C.]

Ammodramus manimbe (Licht.). Common in the savannas.

[Three adults agree exactly in color with specimens from Matto Grosso, Brazil, in corresponding plumage, but are considerably smaller. The average measurements, in inches, of the three Venezuelan birds and four from Matto Grosso are as follows:

	Wing.	Tail.	Tarsus.
Venezuela	2.11	1.54	.71
Matto Grosso	2.37	1.83	.71

The Venezuelan birds have, therefore, shorter wings and tail but equally long tarsi, facts which suggest that they may be more sedentary than the birds of southern Brazil.—F. M. C.]

Icterus xanthornus (Gm.). [An immature female, apparently in its second year, has the wings fuscous, the tail brownish yellow, the back greenish, but otherwise resembles the adult. A bird of the year is similarly colored but has only four black feathers on the throat. Neither plumage appears to have been previously described.—F. M. C.]

Elainea pagana (Licht.). [Five specimens in worn plumage are typical of this species.—F. M. C.]

[*Elainea albiventris*, sp. nov.]

Char. Sp.—Similar to *Elainea pagana albiceps* but with the upper parts much greener and the under parts whiter.

Description of type (No. 1180, Coll. W. H. P., Cumanacoa, Venezuela, July 3, 1897, W. H. Phelps). Upper parts uniform *olive-green* with a barely perceptible brownish tinge; wings fuscous, the greater and lesser coverts tipped with dingy yellowish white forming two conspicuous wing-bars; outer margin of the terminal part of the inner secondaries dingy yellowish white; tail fuscous, the feathers margined externally with brownish olive-green, the under surface of their shafts nearly pure white; a concealed white crown-patch; throat and breast *grayish white*; middle of the belly white; sides of the breast, sides, and flanks washed with greenish yellow; under wing-coverts lemon yellow; crissum pale yellow. Wing, 2.68; tail, 2.34; tarsus, .72; exposed culmen, .34; breadth of bill at anterior end of nostril, .16.

This species is represented in Mr. Phelps's collection by four adult specimens, one male and three females, which are just completing the (post-breeding) moult. It is only after careful comparison of these specimens with a large series of *Elainea p. albiceps* from southern Brazil that I have decided to add a species to an already overburdened genus. The

distinctness of these Venezuelan birds, however, is so apparent that I have no hesitation in describing them as new. They closely agree *inter se* in both size and color, and are readily distinguishable from any one of a series containing nearly fifty specimens of *Elainea p. albiceps*.—F. M. C.]

Found in Cumanacoa in large trees in the open country. Average length, in meat, 5.9 inches. Iris brown. Upper mandible brown, lower pinkish flesh, brown at tip. Legs brownish black.

Leptopogon superciliaris Cab. [Two specimens, extending the range of this species from Colombia to Venezuela. — F. M. C.]

Pachyrhamphus polychropterus cinereiventris (Scl.). [Two adult males are intermediate between *P. polychropterus niger* and *P. p. cinereiventris*, but are slightly nearer to the latter than to the former.—F. M. C.]

Siptornis subcristata Scl. Salv. [Mr. Phelps's collection contains a single example of a *Siptornis* which very probably should be referred to this rare species. The type of *S. subcristata* was collected by Goering at Caracas and is figured in the 'Proceedings' of the Zoological Society for 1874 (Pl. IV, fig. 1). Apparently the same bird is again figured in the Catalogue of the British Museum (Vol. XX. Pl. IV). The differences between these figures are so great that they might well represent distinct species, and while Mr. Phelps's specimen is about as far from the *P. Z. S.* figure as the latter is from the figure in the British Museum Catalogue, it seems more advisable to assume that neither figure is correct than to describe this specimen under a new name.—F. M. C.]

Phacellodomus inornatus Ridgw. [An adult female differs from *P. frontalis* as described by Mr. Ridgway (Proc. U. S. N. M., 1887, p. 152).—F. M. C.]

[*Sittasomus phelpsi*, sp. nov.¹

Char. Sp.—Differing from previously described species in its clear olive-green head and back, and in having the under parts but slightly paler than the upper parts.

Description of type (No. 1496, Coll. W. H. P., Caripe, Venezuela, August 7, 1897, W. H. Phelps). Head, back, wing-coverts and exposed margins of the basal half of the primaries clear olive-green with no admixture of rufous or grayish; exposed part of inner secondaries, outer margin of apical portion of primaries and remaining secondaries, rump, upper and under tail-coverts, and rectrices bright chestnut-rufous; under parts a tint lighter than the back; under wing-coverts and sub-basal portion of the inner web of the secondaries and inner primaries yellowish white. Wing, 3.10; tail, 3.06; tarsus, .70; bill from anterior margin of nostril to end of lower mandible (upper mandible broken), .40.

¹ Named in honor of its collector, Mr. W. H. Phelps.

This species is apparently most nearly related to *Sittasomus griseus* Jard. of Tobago. The latter is doubtless an insular form of the Venezuelan bird, from which it differs in having both upper and under parts "grayish oil-green" and the scapulars [= inner secondaries?], rump and tail "brownish orange."¹

Sittasomus olivaceus (= *S. erithacus* Licht.), as described by Dr. Sclater,² closely agrees with the bird here distinguished as *Sittasomus phelpsi*. As pointed out by Mr. Ridgway,³ however, the *Sittasomus olivaceus* of Sclater includes four distinct species, viz: *S. griseus* Jard., already mentioned, *S. amazonus* Lafr. (Borba, Barra, and Theotonio, Brazil), *S. chapadensis* Ridgw. (Matto Grosso, Brazil), and *S. sylvioides* Lafr. (Mexico). The list of specimens in the British Museum Catalogue shows that Dr. Sclater had examples of most if not all of these species, though his description applies to none of them, but to the previously unnamed bird, which I have here called *Sittasomus phelpsi*. *Sittasomus chapadensis* has the back mixed with the rufous of the rump, the wings are largely rufous externally, the under parts are tinged with yellowish, the under wing-coverts and basal wing-bands are buffy. *S. amazonus* is "much grayer" than *S. chapadensis*, and differs in other respects, while *S. sylvioides* has a "uniform brown back," leaving *S. phelpsi* as the only species in the genus having a clear olive-green back and lower parts, and, with the exception of *S. griseus*, the only one having the basal wing-band pale yellowish white instead of buffy yellow.—F. M. C.]

This species was taken in a high forested valley within a very short distance of the Guacharo cave of Humboldt. The following notes were taken in the flesh: Length, 7.25; bill, brownish-black with some gray in the middle of lower mandible; legs, olivaceous-slate.

Thamnophilus major albicrissus (Ridgw.). This subspecies was described by Mr. Ridgway⁴ from a skin presumably from Trinidad. Mr. Chapman⁵ says, concerning this form, "A male from El Pilar, Ven., and also one from British Guiana, agree with Trinidad specimens, and it is probable that all birds from north of the Amazon should stand as *Thamnophilus major albicrissus*." Two males and two females in my collection agree closely with the Trinidad specimens in the American Museum, thus confirming the above statement of the non-insularity of this subspecies.

Thamnophilus cirrhatus (Gm.). Mr. Ridgway⁴ has described *Thamnophilus trinitatis* from Trinidad. Mr. Chapman⁵ considers this a syn-

¹ Jardine, Ann. & Mag. N. H., XIX, 1847, p. 82.

² Cat. Birds Brit. Mus., XV, 1890, p. 119.

³ Notes on the genus *Sittasomus* of Swainson. Proc. U. S. Nat. Mus., XIV, 1891, pp. 507-510.

⁴ Description of Two Supposed New Forms of *Thamnophilus*. Proc. U. S. Nat. Mus., 1891, XIV, p. 481.

⁵ Further Notes on Trinidad Birds, with a Description of a New Species of *Synallaxis*. Bull. Am. Mus. Nat. Hist., 1895, VII, pp. 321-326.

onym of *T. cirrhatus*, as one of his specimens agreed with skins from Guiana. Two specimens in my collection agree with the Demerara skins, but not with the examples from Trinidad, with the exception of the single one mentioned by Mr. Chapman. The degree of individual variation in this species must be worked out before the synonymy can be established.

Amazilia erythronota (Less.). The most abundant Hummer.

[Comparing six specimens collected by Mr. Phelps with eight specimens in the American Museum, including two authentic Trinidad examples, I can find no grounds for the continued separation of the Venezuelan and Trinidad birds.

The alleged character of difference in the color of the lower tail-coverts proves, as Mr. Salvin has remarked,¹ to be inconstant, this character in the Venezuelan specimens before me ranging from dusky to cinnamon-rufous. Nor is the color of the tail of value, the Trinidad examples being exactly matched by those from the mainland.

I have seen no specimens of *A. tobaci* from Tobago and therefore adopt the name *erythronota* provisionally. — F. M. C.]

Steatornis caripensis Humb. The famous cave, near the town of Caripe, where this species was discovered by Humboldt, was visited on August 5 and 6. The birds were found in great numbers and a thorough exploration of the large cave was made.

Picumnus obsoletus Allen. [Three males essentially resemble the type of *P. obsoletus* except in the color of the crown-spots, which are lemon-yellow instead of orange-red. Two young specimens of *Picumnus guttifer* have both yellow and red feathers in the crown and it seems probable therefore that Mr. Phelps's specimens are immature. In respect to the squamation of the under parts they agree with the type of *obsoletus* in being more lightly marked than *P. squamulatus* of which I have examined seven specimens, including three kindly loaned me by Mr. Charles W. Richmond, Assistant Curator of the Department of Birds in the U. S. National Museum. — F. M. C.]

THE HORNED LARKS OF MAINE.

BY O. W. KNIGHT.

UNTIL the present year, 1897, *Otocoris alpestris* had been the only variety of Horned Lark which had been recorded from Maine, but in view of the fact that *O. a. praticola* had been reported

¹ Cat. Birds Brit. Mus., XVI, p. 225.

from the neighboring New England States it seemed highly probable that it would ultimately be taken in this State. In a letter written in the fall of 1896, my friend, Arthur H. Norton of Westbrook, predicted that the subspecies in question would soon be taken in the State. This prediction was verified by a record in the Maine 'Sportsman' for April, 1897, of the capture of four specimens at North Bridgton, Cumberland County, by J. C. Mead. Some time previously Mr. Mead had written me that he had been looking for Horned Larks in his locality for nearly twenty-five years, but so far his search had been in vain. In March he again wrote that on the 13th he had observed a flock of about twenty-five individuals running along in the road near his residence, and had secured four specimens which from the lack of yellow markings he was inclined to refer to *praticola*. These were later sent to Mr. Norton and their identification verified. When I learned these particulars, I resolved to secure the loan of specimens of the genus *Otocoris* from various collectors in the State with the hopes of discovering more specimens of *praticola* among them. Sixteen specimens were obtained from seven different sources, and eight of these proved representatives of the subspecies in question, all but one being perfectly typical. Three of these, including the least typical one, were sent to Mr. Brewster in order to be absolutely certain of their identity.

The Maine specimens of *praticola*, known to exist in collections are as follows: four taken at North Bridgton, March 13, 1897, by J. C. Mead. Two of these are males and one a female by dissection, while the fourth is a male by proportions and markings. A pair in the collection of the University of Maine were taken at Bucksport, Hancock County, in the winter of 1886 or 1887 by Alvan G. Dorr. A male taken at Bangor, Penobscot County, March 30, 1887, by Harry Merrill, and at present in his collection, is the earliest Maine specimen whose exact date of capture is known. C. H. Morrell of Pittsfield, Somerset County, has in his collection three specimens taken near his home; these are a male taken March 29, 1892, a male taken March 27, 1893, and a female taken March 22, 1894. The ovaries of this last-mentioned specimen were distended to the size of number five shot. A specimen which is seemingly a male was taken at Waterville, Kennebec

County, in the spring of 1892 or 1893 by Prof. A. L. Lane, in whose collection it now is. Another seeming male was taken near Monson, Piscataquis County, by Wallace Homer and is at present in his collection. This gives a total of twelve specimens from six localities, and is evidence enough to prove the regular occurrence of *praticola* in the State as a visitor in late winter and early spring. The chances are that a majority if not all the birds in the flock seen by Mr. Mead were of this subspecies. The nearest to the coast at which it is positively known to occur is Bucksport, situated on the Penobscot River, and consequently we may safely call these interior specimens.

I have seen only nine examples of *alpestris* from interior localities. Six were from Monson, Piscataquis County, and were sent to me by Wallace Homer. One of these was in the flesh, and as it was taken the first week in May I can cite it as a specimen taken at the latest date in the spring on which I have ever known the species to occur. A specimen in the collection of George A. Boardman of Calais, Washington County, one from A. R. Pike of Auburn, and one taken near Lewiston, Androscoggin County, by E. E. Johnson, are all the interior taken specimens which have come to my knowledge. I have personally examined all the specimens above recorded.

With the above evidence we may safely assert that *praticola* is the predominating form of the interior, in the spring at least. Whether it breeds or not I am unable to say, but at present it seems to have been taken only in the month of March. Although Horned Larks have been seen near Bangor and elsewhere in the late fall, I have been unable to learn of any fall specimens from the State being preserved in any collections, and consequently would not care to express an opinion regarding the identity of the birds that occur in fall.

As regards coast specimens of *alpestris*, Mr. Norton informs me that he has in his collection a number of Cumberland County specimens, and as he has been looking for *praticola* in vain near Westbrook, Portland, and Scarborough, the chances are that it occurs there rarely if at all. He informs me that Mr. Rackliff of Spruce Head, Knox County, has also been looking for *praticola* (at his request) but in vain so far.

I have corresponded with all the leading Ornithologists of the State, and have seen nearly all the Horned Larks which they have in their collections. My thanks are due to the parties named in this article for loaning or allowing me to view the specimens here recorded. All previous records relating to the occurrence of these birds in Maine are open to grave doubts, owing to the uncertainty as to which of the Horned Larks they refer.

Since writing the above article, I have learned that Mr. C. D. Farrar took a specimen of *praticola* from a flock of eight or ten, near Lewiston, Feb. 26, 1897, and that it was identified by Mr. Brewster. For records of these birds, published elsewhere since my article was written, cf. Knight, 'List of the Birds of Maine,' p. 82, and Morrell, 'The Osprey,' June, 1897, p. 137.

NOTES ON THE AMERICAN BARN OWL IN EASTERN PENNSYLVANIA.¹

BY J. HARRIS REED.

THE breeding range of the Barn Owl (*Strix pratincola*), with few exceptions, does not extend north of Pennsylvania or New Jersey. It is locally distributed throughout its range, being restricted to such localities as afford an ample food supply for its wants. The extensive meadow lands along the Delaware River, south of Philadelphia, are its most favorite retreat, in this vicinity. Most of the trees which were scattered over these meadows and stood as old land-marks for roosting and nesting places of this bird for many years have been destroyed by storm or axe, and the Owls have been compelled to a great extent to seek quarters over the adjoining country; a few, however, still remain.

¹ Read before the Delaware Valley Ornithological Club, Philadelphia, April 15, 1897.

During the summer months I have often found the young, after leaving the nest, roosting during the daytime among the dead or dense foliage of trees, probably for want of other shelter. In such cases the ground, bushes, and trunks of the trees in which they roost, are often very noticeably marked with the excrement and dried-out pellets, which lead to their discovery.

This Owl is resident the year around in this locality. During the fall and winter months I have found them roosting both singly and in colonies, depending on the size of their roosting places, and often occupying separate cavities of the same tree. An example of this may be found located in the woods at Glenolden, Delaware County, Pa., which has been a favorite roosting and nesting place for several years. This dormitory is beyond the reach of the ordinary climber, owing to its height of about sixty feet above the ground, the size and bareness of the trunk preventing many persons from investigating them and accomplishing their extermination.

On January 31, 1891, accompanied by my friend Mr. C. A. Voelker, I visited this tree and from the numerous holes in its branches counted fourteen Owls fly out during the evening. Five of these were secured, two males and three females, three being old birds and two young. Again on September 25, 1892, I paid the place a visit, but, arriving a little late in the evening, I saw only four Owls, Mr. Voelker on the following evening seeing five birds, one of which he shot. The Owls leave the roost very early in the evening, often a long time before sunset, departing singly, several minutes elapsing after the exit of one before the appearance of another, each circling around the tree several times before leaving, emitting a note similar to the clucking of a squirrel, probably a call note to their companions. This habit of leaving the roost before sunset, is more noticeable during the breeding season when the days are long and the nestlings require food, and this no doubt accounts for their being seen occasionally during cloudy days searching for food.

I think the female remains on the eggs and is often fed by the male during the season of incubation, as a certain amount of food is generally found in the nest at this time. I have never found the male covering the eggs, although if the cavity is suffi-

ciently large he is often found by her side. I have often cautiously approached their nests and peered into them before they took flight, which enabled me to distinguish the sexes as they left the nest and were shot by my companion or a gunner who chanced to be patrolling the meadows. If the eggs were heavily incubated the female was very reluctant in leaving them, but the male flushed very easily.

In the wild state their food consists chiefly of meadow mice (*Microtus pennsylvanicus*).¹ From the examination of several hundred pellets gathered from about their roosts, etc., I have never yet found any indications of their having eaten birds. I find that two mice is the average number contained in a pellet; and would suppose the Owls on retiring to their roosts in the morning would have a full stomach, and if two mice is the average number eaten at a meal, which takes at least three hours to digest, they would not consume very many mice with even four meals in a night. The pellets are always regurgitated before additional food is eaten, and those which I have examined from birds in the wild state indicated a complete digestion. I have, however, found as many as six mice in a pellet, but in such cases they were always collected from the nests during the breeding season, and were no doubt discarded by the female; I have found as many as thirteen fresh mice in a nest at one time, and I would suppose she would take advantage of such a supply.

In captivity they will eat anything in the fresh meat line. The following interesting facts I observed of a pet Owl belonging to Mr. Voelker, which was sent to him by a man from Haddonfield, New Jersey. From its plumage and size I should judge it was a two year old male. It was crippled in one of its legs, which had been broken above the knee joint, the bones having knit together with the foot sideways, pointing outward, which deprived it of the proper use of the foot; it therefore took kindly to Mr. Voelker's hospitality, who fed it daily on small birds and mice taken from about his premises. When these were not available, slices from

¹ My friend, Mr. S. N. Rhoads, has identified the following mammals in their pellets: *Microtus pennsylvanicus*, *Microtus pinctorum*, *Peromyscus leucopus*, *Zapus hudsonius*, *Blarina brevicauda* and *Condylura cristata*.

the carcass of a Horned Owl, Curlew, Barn Owl, or any other food from about his workshop, was used.

The manner of preparing the food before swallowing it is also very interesting. The mammal or bird, as the case may be, if alive, is killed by piercing or crushing the base of the skull between the mandibles; when a bird, the longest and stiffest wing and tail feathers are plucked with its beak; if of the size of a Sparrow it is swallowed whole, always head first; if of the size of a Catbird, Thrush, or Robin, it is torn apart before devouring.

As Mr. Voelker took pleasure in assisting his pet to prepare its food in proper doses, it always relied on his judgment as to the size and shape of the morsel. I was amused during one of these operations, when he was feeding him a Catbird, just shot. He gave the helpless Owl a leg, with the thigh and adjoining portions attached, expecting him to swallow it whole; this of course with great exertion he endeavored to do, but the thigh end going down his throat, the tarsus stuck crosswise, the foot protruding from the corner of his mouth. When I insisted, Mr. Voelker relieved him by pulling it up again and breaking the bones for him. He never showed any desire to gorge himself, but often refused to notice food after having eaten a small bird. The pellets were always ejected before another meal was eaten, and could be disgorged at will, which was shown when he was offered a tempting piece of food. In doing this he would bow his head against the breast and shake it from side to side in a very dejected manner, then straightening himself up would endeavor to cast it off as if with a very repulsive feeling, as though it had a bitter taste, or was not a pleasant duty. In this manner, with widely distended mouth, it was thrown out with force enough to carry it twelve to eighteen inches from him. These pellets were often only partly digested, which may account for the unusual effort required at times. When remaining in his presence or when disturbed, he kept up a continual cry resembling that of a squab pigeon.

The tameness of this Owl may seem almost incredible; he could always be found in Mr. Voelker's company, either alongside of him or on his arm or shoulder. When engaged at his taxidermic work he would have to place a stuffed companion alongside of

the Owl to attract his attention, or he would be continually in the way. On another occasion during 1893, Mr. Voelker and myself bought three young Owls, which were shipped from Milford, Delaware, to a bird store in Philadelphia to be sold. I think they were two females and one male. The tips of their feathers still had the down clinging to them, especially on their heads and shoulders. This down is pushed out of the papillæ by the new growing feather, and in time becomes brittle and breaks off, not necessarily at the point of attachment, for the fuzzy stumps can often be seen long after the bunches of down have disappeared. The down appears to be in three distinct bunches of seven strands each, about an inch long, attached to the tips of several barbs drawn together, the middle one being exactly in the centre of the feather with one on each side of it. Nature has wisely provided in this way that the nestling should not be unclothed while in the change of moult. The youngest of these Owls was afterwards stuffed with a view of preserving it with the down, which unfortunately became brittle in time and could be blown off like the seeds from a ripe dandelion. The other two birds were liberated and remained in the woods about his house for several months, roosting among the dead foliage of broken limbs, their color resembling the leaves so closely that they were not very readily detected. From this roost I gathered a great many pellets which I examined carefully, but failed to find any differences between them and others collected elsewhere.

I have never witnessed any pugnacious qualities in their habits, but Mr. Voelker informed me that on one occasion the pet Owl attacked his daughter, who opened an umbrella suddenly in his presence; whether or not this was more from fright than anger I am unable to say, but she was always fearful of his presence afterwards. I also read in one of the Philadelphia papers some time ago of a case where a small colony had taken possession of a barn near Plainfield, New Jersey, and fiercely attacked every one who attempted to enter the building, the result of a boy molesting their young. I wrote to the farmer whose name was given, but my letter was returned unopened, and I therefore cannot vouch for the truthfulness of the statement.

During the spring of 1890, while studying the birds of Tinicum,

Delaware County, Pa., I discovered a nesting site of this Owl in a pin-oak tree, about twenty feet above the ground. The tree formed part of and fringed a small clump of maples and other swamp growth, between Long-hook Creek and the railroad, about half a mile above the main woods. The cavity was fifteen inches in diameter and two feet high, extending up to a smaller opening three feet above, which gave the Owls a chance to escape out of either hole if necessary. The entrance to the hole was quite open and the bottom of the cavity only a few inches deep. Among the decayed wood, pellets, droppings, etc., the eggs were laid and often concealed beneath this rubbish, probably to avoid the searching eye of the Crow, Blue Jay, or other intruders, while they were absent from their nest.

On the 31st of March of that year, while wandering along this clump, my attention was directed to this nest by a fence rail standing against the tree. Thinking it the work of some boys, who do not always climb trees for fun, I concluded to satisfy myself. Upon investigation I found it contained three eggs and two young birds a few days old, which, judging from the odor, had been dead some time. I cleaned the nest out and carried the eggs home and on blowing them I found they were in different stages of incubation, one almost fresh while the third was about ready to hatch. I watched this nest regularly and found it reoccupied on the 20th of April. On the 1st of May it contained two eggs; on the 4th, a young bird was hatched; on the 22d, I found the nest robbed again, but, with the birds alive I still kept up hope, and, on the 30th found two eggs. From this time on I began removing the eggs one by one as they were laid, for the nest was continually molested by boys and gunners who shot several male birds from the persistent female, who did not seem to be baffled by her misfortunes. Five of the nine eggs secured were presented to the D. V. O. C. collection of the Academy of Natural Sciences. Everything went well until June 8, when on my way to the tree I met two small boys coming from that direction with her ladyship tied up in a handkerchief and carefully tucked under one fellow's coat. After halting them and seizing their booty, I expressed my displeasure in a very feeling manner. After composing myself, the question then was, what to do with

the Owl. Fearing, if liberated, she might not return to the nest through fright, I concluded to take her home with me and keep her in captivity for a few days, with a view of studying her habits. A large box with a wired front was soon arranged and she was put into it. Here she was kept for three days, but absolutely refused food or water left her, which so preyed upon my feelings that I took compassion on her and set her at liberty. The day following her capture she laid an egg, which was carefully removed with a stick. When I approached her box she would retire to the farthest corner, open her mouth wide and emit a most piercing hissing cry as if from fright, which had a tendency to stand my hair on end. During the next two years after this experience, I occasionally visited the tree with the hopes of finding it occupied, but owing to the building of several houses in the vicinity by a land company, the poor Owls had no peace, and the tree was finally cut down.

From the experience of others with these Owls in captivity, I feel satisfied that the male birds are more easily domesticated than the females.

On two different occasions I took pleasure in escorting some of the Delaware Valley Ornithological Club members to this nest. The first time, being accompanied by Mr. Witmer Stone, the birds were absent, but the finding of three fresh mice in the nest was evidence of its being occupied. Mr. Stone robbed the poor birds of two of these for his collection. On the other occasion Messrs. W. L. Baily and G. S. Morris were escorted to Tinicum on an evening train; Mr. Baily was selected as the victim to climb the tree first to flush the Owls, as both male and female were mostly found together in this nest, the cavity being of sufficient size to accommodate both of them. The flushing of Owls in this manner is a very delicate performance, and on such occasions it is well to wear a mackintosh, as they generally leave the nest in the manner of a Green Heron; but Mr. Baily fared very well, and we clambered up after him and took our positions about the hole for investigation. Among the refuse of the nest an egg was discovered, completely hidden from view; a mouse or two were also probed out. After the Owls left the nest on this, as well as on previous occasions, they were attacked by numerous Crows.

During the summer of 1888, a pair of these Owls frequented the ice-house on the border of the lake at Ridley Park, Pa., and I was informed by a resident of the place that a brood had been reared there the previous year.

I recollect a happy experience with this Owl during April, 1883, when, accompanied by Mr. Voelker, I visited an old pin-oak tree on the lower end of Providence Island, Philadelphia County, where young are probably reared at the present day. The tree in question was within fifty feet of a farm-house, where lived an old Irishman and his family. On one side of the tree was a pig-pen, the shed of which backed up to it. During the afternoon Mr. Voelker had an interview with the mistress of the house, but failed to impress her with the importance of a scientific investigation of the Owl nest, so we concluded to purloin our fuzzy friends after dark. While Mr. Voelker was shinning the tree with my assistance from the shed over the pig-pen, the roof suddenly gave way, and the pair of us landed with a crash among the hogs, who made their escape with a terrible snort; in fact, we made our escape surprisingly quick, also. Afterwards we were always a little gun-shy of the spot, and kept reasonably distant from the locality.

Another old nesting tree, which was blown down by a wind storm August 6, 1893, stood in the southwest corner of Providence Island, between Darby Creek and the railroad. For many years it was regularly occupied, not only as a breeding place, but also for roosting purposes. I visited this tree on September 24, 1893, after hearing of its destruction, and found the decomposed carcasses of three young Owls upon the ground among pellets, etc., which had evidently been the contents of the nest when overtaken by the storm.

The tree, from its fall, had broken in half through the section containing the hole, thereby giving a much better opportunity for investigating.

The height of the hole from the ground was twenty-five feet; diameter of hole inside, two feet; outside diameter of tree at nest, three and one-half feet; the hole, three feet deep, when cleaned out. Upon digging out the solid accumulation of the nest to the extent of two feet deep, several skulls and bones of young Owls

were found, whose death no doubt resulted from starvation caused by the parent birds being shot. I gathered up sixty-eight skulls of mice, which Mr. S. N. Rhoads has identified as already noted. On August 4, 1893, a nest of these Owls was discovered in one of the chutes of the Girard Point Elevators, at the mouth of the Schuylkill River, by one of the employees, who killed the female and presented it to Dr. E. S. Harrington, of Philadelphia, who had it mounted by Mr. Voelker. This nest contained eggs. I was informed by one of the employees that they experienced great difficulty in preventing the Owls from nesting in the lofts of the elevators, and on different occasions nests with young had been found there. There is no doubt that the rats and mice which infest these elevators are their chief attraction, and I see no reason why they would not prove beneficial tenants to the owners. The glass windows in the lanterns were mysteriously broken from time to time, and it was finally attributed to the Owls. This was probably an accident on their part through a desire to reach their quarry from the outside.

Barn Owls also roost and nest among the old hollow-trunked swamp willows growing in the meadows along the Schuylkill River near its mouth.

One of the most peculiar nesting-places which I have met with was in a portable grain elevator, constructed entirely of iron. Within the hood at the top was a wheel six feet in diameter with a convex felloe two feet wide; in the felloe between the spokes they laid their eggs, among the accumulated pellets, etc. They effected an entrance into the hood through a hole above the axle of the wheel. This elevator has been out of service since the new buildings at Girard Point were built, and has been regularly used by the Owls since that time. On April 24, 1895, Mr. Mark L. C. Wilde removed two fresh eggs from this nest, and found it occupied by both birds. On April 30, three additional eggs were secured.

Another nesting place, which is occupied at the present time, is in a pin-oak tree situated in the northwestern corner of Tinicum Island, along Bow Creek. On September 28, 1895, accompanied by Mr. Wilde, I visited this nest. The cavity is twenty feet above the ground and is an irregular oval in shape, its length

being sixteen inches, width twelve inches at one end and six inches at the other. The bottom of the cavity is eight inches below the edge of the hole, and the top of the nest was entirely open, being formed in the stump of a broken-off limb. The birds were not present, but the nest contained seven eggs, four of which were fresh, one slightly incubated and two well advanced. Among the pellets, etc., were probed out thirteen fresh meadow mice.

From my experience, the number of eggs laid ranges from five to seven, and incubation lasts about three weeks for each egg. The earliest date recorded for fresh eggs is March 10, and the latest September 14.

THE TERNS OF MUSKEGET ISLAND, MASSACHUSETTS. PART III.

BY GEORGE H. MACKAY.

I HAD about concluded that I would not take any detailed notes this season on the Terns of Muskeget, intending simply to visit them once or twice during the summer in order to ascertain how they were breeding. In furtherance of this plan I visited the island on June 26 and 27, 1896. *Once there*, I thought I should like to know how they were laying in comparison with other years, especially 1895. I therefore asked Mr. Sandsbury to get his boat ready and we soon started for my favorite Tern resort, Gravelly Island. Our near approach was heralded as usual, and we were greeted with protests by the large assemblage of birds, considerably augmented since last season. Notwithstanding their protests we checked off every nest and egg we could discover. It was evident from the number of birds in the air, as well as the eggs discovered, that the increase from last season had been greater than in any former year. My observations last season have been further strengthened this, that *Sterna dougalli*, where the means are available, builds a better nest and conceals it more carefully than does *S. hirundo*. I saw a good many Roseate nests last year, as

also this, that had tunnel or burrow entrances to them in the high, luxuriant beach grass (*Ammophila arundinacea*); such nests are common on Gravelly Island. I also wish to observe that this year the Wilson Terns built better nests than I have ever known them to do before. I have no reason to offer for this change. The usual two or three Roseate nests were found close to the house on this island; one of these, within five feet of the house, contained two eggs, another, within three feet, contained three eggs. The chicks noted here, are only what I personally observed. I saw no dead ones on the island, and I feel fairly safe in saying, that one thousand young birds have been raised there this season. The condensed result of the nests and eggs found here is as follows.

Gravelly Island, June 26, 1896.

72 nests of 1 egg each,	72
239 " 2 eggs "	478
168 " 3 " "	504
2 " 4 " "	8
none " 5 " "	none
<hr/> 481	<hr/> 1062

In addition to above were

7 nests of 2 eggs each and 1 chick
3 " 1 egg " " 1 "
Found away from nest, 9 chicks

Leaving Gravelly Island we continued on to *South Beach*. Here we also noted more eggs than usual, nevertheless I failed to certainly identify any of them as being Arctics (*Sterna paradisæa*), though some of them looked to me as if they were such and the birds themselves were in the air overhead. The following is an account of what was observed here.

South Beach, June 26, 1896.

None, nests of 1 egg each,	none
9 " 2 eggs "	18
8 " 3 " "	24
1 nest of 4 " "	4
None, nest of 5 " "	none
Dropped eggs,	1
<hr/> 13	<hr/> 47

In addition to above were

1 nest of 1 egg each and 1 chick
3 nests of 1 " " " 2 chicks
1 nest of 2 eggs " " 1 chick
Found away from nest 4 chicks

It required but a few strokes at the oars to place us on *South Point Island*, which can now no longer be designated as such, it having been joined on about three weeks ago to the south point of Muskeget Island, from which it had originally been severed by the ocean. This is one of the favorite breeding places of the Terns, and they congregate here in large numbers, all three varieties being intermingled. I was able to perceive considerable increase from the numbers which were domiciled here last season. The following gives the nests and eggs observed here.

South Point Island, June 26, 1896.

57 nests of	1 egg each,	57
308	" 2 eggs "	616
283	" 3 " "	849
9	" 4 " "	36
2	" 5 " "	10
<hr/> 659		<hr/> 1568

In addition to above were

8 nests of 1 egg each and 1 chick
8 " 2 eggs " " 1 "
Found away from nests, 23 chicks
Dropped eggs, 5

On June 27, 1896, I started early in the morning (without Mr. Sandsbury, he being unable to accompany me) to walk over and check off the eggs on the island of Muskeget proper. When I reached the line where the nests commenced, and which had been considerably extended since last year, and surveyed the extent of territory to be traversed and examined, the difficulty of successfully accomplishing the work alone became apparent, and believing the result as thus gathered would prove unsatisfactory to myself, and unreliable for record, I abandoned it, and also for the reason that I could not possibly do it, and in addition, check off the nests

and eggs in the colony of Laughing Gulls (*Larus atricilla*), which I considered the more desirable data for present record. I, however, walked all through the breeding area on two separate lines, in order to acquaint myself with the conditions. I suppose it is safe to say that there are many more Terns here this year than last, but it would be difficult to substantiate the statement by evidence. The fact is that the birds have now reached such numbers as to render even an approximate estimate useless. Great as the aggregate may be, there is yet ample room on Muskeget Island proper alone, for several times the present number, whatever it may be, to breed.

Of the eggs viewed on the various islands this season I did not see one other than normal ones.

The first arrivals of the Terns this season was on May 4. (They commenced to arrive on the night of May 9 at Penikese Island, Massachusetts, and by the 11th were apparently all there.) A dense fog prevailed at the time when they were first heard high up in the air. The fog lifting for a short time later in the morning, disclosed about a dozen birds. On May 8 Mr. Sandsbury noted fifty Wilson Terns, the weather still continuing foggy. On the 9th it cleared and the Terns were seen in thousands over Muskeget Island proper. On April 27, 1896, Mr. Sandsbury observed four Least Terns (*Sterna antillarum*) for the first time this season; on the 30th he saw about a dozen. On May 31, 1896, Mr. Sandsbury noted seven nests with one egg each; two nests with two eggs each; and one nest with three eggs.

As this happened to be the first walk he took to look for eggs, it does not follow that they were the first of the season. On June 9, with Mrs. Sandsbury, who assisted in the search, he walked in a direct line from his house towards the north shore of the island and returned by another route not covered by the first. The following is the result noted.

25 nests of 1 egg each, 25				
112	"	2 eggs	"	224
205	"	3 "	"	615
13	"	4 "	"	52
7	"	5 "	"	35
<hr/>				<hr/>
362				951

My next visit to Muskeget was on July 26 and 27, 1896. On the former date the sun was overcast but with a very clear atmosphere, so much so that I could easily distinguish the less distinct markings of the birds in the air with great accuracy. I visited Gravelly Island first, as usual, and with Mr. Sandsbury looked it well over. He informs me the first young birds he casually noticed in the air about Muskeget Island proper was on July 19.

We found scarcely any chicks here which were unable to fly, and there were large numbers of young birds in the air all around the island. We counted in all fifty-four dead chicks here.

Proceeding on, we soon landed on the *South Beach*. As I have before stated, the atmosphere was peculiarly favorable for viewing birds in the air, and I have never but once before had a similar experience here; as a result, I selected and shot nine Terns which were flying overhead with the idea of their being *S. paradisæa*, (two of them were shot on South Point, Muskeget Island); eight of them proved to be such; the other, with fully as dark underparts, had the black-tipped bill of the Wilson Tern (*S. hirundo*). I saved the other skins, but not this one. I saw other Arctic Terns, besides those taken.

All the Terns here are very gentle and tame, and show a marked contrast to the Terns of Penikese Island, Massachusetts, which are wild and shy, the result of the treatment they have been subjected to. I found but few chicks here unable to fly; all the others were in the air about us; there were quite a number, however, which could not sustain themselves in the air for any great length of time.

Crossing over to *South Point Island* we found the same conditions prevailing, the young birds were mostly in the air and we saw comparatively few chicks unable to fly. Walking over the recently formed beach, which now connects this former island with Muskeget Island proper, we reached *South Point*. I noticed here twenty-four dead chicks; in other respects the conditions were identical with those on South Point Island.

On July 27, 1896, I walked over all the breeding grounds on Muskeget Island proper, where incubation was also practically over. There were, of course, more or less eggs observed, but the percentage they bore to the original number was very small;

neither did I notice but few chicks which were unable to fly; everything in fact evidenced a most successful and prolific breeding year for the birds. As the whole month of July had been wet and cold, with a very heavy gale, accompanied with torrents of rain, commencing on the night of July 4 and continuing until the afternoon of the 5th, I feared that a diminution in the number of young birds might be expected as a result of these conditions. Contrary, however, to these expectations nothing disastrous took place. The young were flying earlier than usual, and I cannot help thinking that the mortality among the young chicks from natural causes was less than usual. It will certainly be a grand sight to see them all here next season.

During my first visit here, June 27, 1896, I observed one Short-eared Owl (*Asio accipitrinus*). This bird evidently had a mate, and together they raised a brood of four young, for during my last visit I noted six on the 27th of July. I devoted much time in trying to get near enough to shoot them. After much labor, as they were very shy, I killed one of the younger ones, which was fully grown. Together they must have destroyed a good many young Terns this season, and are likely to return next year to their breeding haunt.¹ It was particularly interesting to note with what perfect indifference they received the attacks of a thousand or more Terns which collected around them, whenever they appeared in the air, and even when alighted on the sand there was usually a large concourse hovering over them. I could not perceive that the Terns annoyed them in the least.

As heretofore, I desire to say a few words regarding the status of the Laughing Gulls (*Larus atricilla*) for 1896. For several days previously it had been thick, foggy weather; when it cleared, on May 9, the Laughing Gulls were heard for the first time this season. On the 17th of May Mr. Sandsbury noted that there seemed to be more of them than usual. On May 29 he wrote me that he "never saw so many." On June 27, 1896, I carefully walked all over their breeding ground, which is the same as last year, and the only one on these islands. It is located on the

¹ All but one were shot before the close of the season. The one left was probably a migrant, as six in all had been killed.

northern side of Muskeget proper and has gained this year a little in length and width. In length it has now reached its westernmost limit; any future increase in area, owing to the nature of the ground, will probably be towards the eastward. Three nests, one of three eggs, and two of two eggs each were found in the marsh at the south side of Muskeget proper in July last. They were placed on top of some of the sand hillocks. I found in all thirty-two nests, containing seventy-nine eggs and one chick. There were *no concealed* or alley nests noticed this year, the birds apparently not considering such precaution necessary. They were also tamer than I have before observed them to be. One nest, located on the top of the south ridge of the valley where they were breeding, had three well-worn, distinct pathways leading to it. The nest and eggs were without any concealment. It would seem quite conclusive that these Gulls never alight *on* the nest, but a little distance away and walk to it. There are more of these Gulls here this season than last; the increase is necessarily small, as the colony is not large. If undisturbed they will continue to return and do well, but I do not think they will submit to much harassing. A list of their nests and eggs is as follows. Only one chick was noted, about two days out of the shell.

Muskeget Island, June 27, 1896.

4	nests of 1	egg each,	14
9	"	2 eggs "	18
19	"	3 "	57
32			79

On July 27, 1896, I went over all this ground a second time. With the exception of half a dozen or so, all the eggs had been hatched, as was evidenced by the many broken shells lying about. I found but one chick in the grass, although I searched very carefully, and I am puzzled to know where they hide themselves, as I did not see a single *young* bird in the air, nor did I July 30 last year. The old birds were sitting all about, and concentrated on their breeding area, often in groups. I did not note a single dead chick; I have in fact *never* seen a dead one. I, therefore, think, taking everything into consideration, that these Gulls have

also had, like the Terns, a most favorable and successful breeding season.

In late advices from Mr. Sandsbury (October 2) he informs me that on this date the Terns had diminished about one half, and that almost every day large flocks could be seen going high up in the air and after circling coming down again, these actions being preparatory to setting out on their southern migration. This shows that the birds are remaining later than usual this season.

In advices from Penikese Island, Massachusetts, I learn that there were but few Terns remaining after September 1, and by the 17th, they had all departed.

The little beach mouse (*Microtus breweri*) has again become very abundant on Muskeget Island proper. The remnant which was preserved on South Point Island, some years ago, can now pass uninterruptedly over the newly formed beach which connects the two. On July 27, 1896, I took an adult male which was in the process of shedding its coat.

CRITICAL NOTES ON THE GENUS *AURIPARUS*.

BY HARRY C. OBERHOLSER.

PROFESSOR BAIRD, with his usual astuteness, was apparently the first to notice the considerable difference existing between the Verdins of Texas and those of Lower California.¹ He mentioned their contrasting points but did not regard these characters as of distinctive value. Mr. Walter E. Bryant,² in his remarks upon the genus, subspecifically separated the western form and bestowed upon it the name *Auriparus flaviceps ornatus*. Mr. Bryant was possibly not correct in supposing that the type of Sundevall's

¹ Review of American Birds, I, Aug., 1864, 85.

² Zoe, I, 1890, 149.

Ægithalus flaviceps came from Mexico,¹ although quite right in considering that Lawrence's *Conirostrum ornatum* from Texas is the same form.² Since *Conirostrum ornatum* is thus made a synonym of *Ægithalus flaviceps*, or as it is now known, *Auriparus flaviceps*, the term *ornatus*, if employed in the genus *Auriparus*, becomes manifestly untenable. Consequently if there be no other name available, and assuming, of course, the validity of this form, the *Auriparus flaviceps ornatus* of Bryant will require to be rechristened. And this seems to be the necessity, for apparently the only remaining synonym is *Parus flavifrons* of Gray,³ which, though attributed by him to Sundevall, is quite evidently a mis-citation of the latter's *Ægithalus flaviceps*, and is consequently an undoubted *nomen nudum*. Furthermore, it is probably applicable entirely to the eastern race, as 'Rio Grande' is the only locality assigned.

The subspecies inhabiting Lower California may therefore be called

***Auriparus flaviceps lamprocephalus*, nobis.**

CHARS. SUBSP. — *A. flavicepsi affinis, sed cauda multo brevior, necnon alis brevioribus; capite flavo paululum clariore.*

Al., 48-52 (50.1) mm.; caud., 41-43.5 (42.2) mm.; culm. exp., 8.5-9.5 (9.) mm.; tars., 14-15 (14.7) mm.

Habitat. — California inferior australis.

Description. — *Type*, male adult, No. 117551, U. S. Nat. Mus.; Cape St. Lucas, Lower California, April 7, 1889; C. H. Townsend. Upper parts, excepting head, dull smoke gray, washed with olive yellowish, most conspicuously so on the rump. Wings and tail fuscous, the wing-coverts, tertials, and narrow edgings to quills and rectrices paler than the rest; bend of wing rich burnt sienna. Head all around deep gamboge yellow, shaded on occiput and sides of head with olivaceous, the crown and throat being almost immaculate. Remainder of lower parts dull white, with a slight wash of yellow, this most evident on the breast and anal region.

Young, sex unknown, No. 16962, U. S. Nat. Mus.; Cape St. Lucas, Lower California; J. Xantus. Above pale grayish brown, the rump strongly

¹ In the original description, verified for me by Mr. Witmer Stone, Sundevall states that his type came from 'Sitka or California.' (Öfversigt Vet. Ak. Förh., VII, 1850, 129, note.) Its measurements refer it to the more eastern race.

² Ann. N. Y. Lyc. Nat. Hist., 1851, 113.

³ Hand-List Birds Brit. Mus., I, 1869, 234.

tinged with tawny olive, the head washed with olive yellow; a few wholly yellow feathers on the crown. Wings and tail light brown, of a shade approaching broccoli brown, the feathers nearly all narrowly margined with paler; bend of wing burnt sienna. Sides of head like the back, but mixed with many feathers of the new plumage; lower parts soiled white, slightly suffused with dull yellow on the breast, and with a few bright yellow feathers visible on the chin and throat.

This form is distinguished from true *flaviceps* by its very much shorter tail, somewhat shorter wing, and by the brighter tint of the yellow of the head, particularly that on the forehead and anterior portion of the crown. This clearness of the yellow of the head, though not entirely constant, is apparently an excellent average character.

In two of the five adult males examined there is a noticeable rufous patch on the forepart of the crown, and in one of these two birds it is quite well defined. In the three other specimens, including the type, the bases of the feathers on this part of the crown show more or less of rufous, which, however, does not appear unless the plumage be disturbed. The type and one of the others are quite strongly tinged with yellow on the body, both above and below; while in the remaining three this color is, except on the rump, barely evident posterior to the head and throat. The general tone of the plumage above, exclusive of the head, is very uniform in three of the specimens; somewhat darker in one of the others, and slightly browner in the remaining example. A young bird in the U. S. National Museum collection, supposed to be from Santa Margarita Island, Lower California, is darker above than the specimen here described, but is not otherwise importantly dissimilar. As this bird was skinned from alcohol its different color may be due to the chemical action of the preservative.

Mr. Bryant included southern Arizona and southern California in the range of his western race (*loc. cit.*), but with the series of Arizona and Texas specimens now available (some 65 in all) it seems impossible satisfactorily to separate the birds from these localities. It is true that the birds from Texas are slightly larger, and, even in very young plumage, appear to average rather darker than those from Arizona, but the difference is very slight and inconstant.

While most of the Arizona breeding birds, with some of the winter ones, are a little paler than Texas examples, many of the winter specimens from the former locality are fully as dark as Texas birds of the same season. Unfortunately there is not at hand a series of California specimens, but two birds from Fort Yuma, and one from the Colorado Desert, San Diego County, California, are not appreciably different, either in size or color, from specimens taken in southeastern Arizona. So far as *lamprocephalus* is concerned, the color of the upper parts exclusive of the head is about as dark as that of Texas birds of the corresponding season. No specimens from the upper half of Lower California have been examined, by reason of which it is impossible at present to determine how far to the northward the range of the Cape form should be extended.

True *Auriparus flaviceps*, whose range may be considered to extend from Texas to California, exhibits very much individual as well as seasonal variation. In the general color of the upper parts there exists usually much difference, even in specimens of the same season from a particular locality, so that this character becomes valueless as a basis of comparison. Summer birds are, on the whole, paler than those of any other season, but there occur some winter specimens which are fully as light in color as are those taken in the breeding season. The upper parts range in color from dull smoke gray to hair brown; and the under surface from grayish white to creamy or brownish white, in some specimens the median portions being tinged with the yellow of the head. Taking into consideration only the adult males, as has been here done in the diagnosis, it is found that considerable difference exists in the shade and extent of the yellow of the head and throat. In most cases there is little or no indication of a rufous frontal patch, though it usually is present to a greater or less degree, but visible only on disturbing the feathers. In some specimens, however, it is very strongly marked.

The writer desires to make acknowledgment to Mr. Robert Ridgway for the privilege of examining material in the National Museum; and to Mr. Frank M. Chapman for the use of specimens belonging to the American Museum of Natural History.

MEASUREMENTS OF SPECIMENS OF *Auriparus flaviceps lamprocephalus*.

U. S. N. M. No.	Sex.	Locality.	Wing.	Tail.	Exposed Culmen.	Tarsus.	Middle Toe with Claw.
12968	♂	Cape St. Lucas, L. Calif.	48	41	9	15	13
12967	♂	" " "	49	42	8.5	14.5	12
117551	♂	" " "	52	43.5	9.5	15	12
117552	♂	" " "	51.5	43	9	15	12
117580	♂	Conception Bay, "	50	41.5	9	14	12
Average			50.1	42.2	9	14.7	12.2

MEASUREMENTS OF *Auriparus flaviceps* FROM TEXAS.

Average of five males	54.4	49.5	8.8	15.5	12.4
Maximum	55	51	9	16	13
Minimum	54	47.5	8.5	15	12

MEASUREMENTS OF *Auriparus flaviceps* FROM ARIZONA.

Average of ten males	52.9	48.2	8.1	15.3	12.2
Maximum	54.5	50	8.5	16	12.5
Minimum	51.5	47	7.5	15	12

DIRECTIVE COLORATION OF BIRDS.

BY ERNEST SETON THOMPSON.

Plate IV.

THE Protective Coloration of Birds has been much studied of late, but I do not know of any paper treating of their Directive Coloration.

While living on the Plains in the eighties, I made many studies, or as I then called them 'flying descriptions' of birds, and on putting these together recently in a methodic scheme I arrived at a few general principles that may prove of interest.

I can best illustrate by taking an example from mammals. The common jack rabbit when squatting under a sage-bush is simply a sage-gray lump without distinctive color or form. Its color in particular is wholly protective, and it is usually accident rather than sharpness of vision which betrays the creature as it squats. But the moment it springs, it is wholly changed. It is difficult to realize that this is the same animal. It bounds away with erect ears, showing the black and white markings on their back and under side. The black nape is exposed, the tail is carried straight down, exposing its black upper part surrounded by a region of snowy white; its legs and belly show clear white, and everything that sees it is plainly notified that *this is a jack rabbit*. The coyote, the fox, the wolf, the badger, etc., realize that it is useless to follow; the cottontail, the jumping rat, the fawn, the prairie dog, etc., that it is needless to flee; the young jack rabbit, that this is its near relative, and the next jack rabbit that this may be its mate. And thus, though incidentally useful to other species at times, the sum total of all this clear labelling is vastly serviceable to the jack rabbit and saves it much pains to escape from real or imaginary dangers.

As soon as it squats again all the directive marks disappear and the protective gray alone is seen.

In the bird world the same general rule applies. When *sitting*, birds are *protectively* colored; when *flying*, *directively*.

The general rule may be topographically rendered : Color of upper parts, Protective ; color of lower parts, Directive. In the drawings, I have shown only certain birds of prey. All of these present a distinctive pattern when viewed from below as they fly. It is inconceivable that this pattern should have a protective object, so if it have a purpose at all it must be a directive one.

An evidence of this is seen in the fact that all birds with ample wings and habits of displaying them bear on them distinctive markings—*e. g.*, Hawks, Owls, Plovers, Gulls, etc. Every field man will recall the pretty way in which most of the Plovers identify themselves. As soon as they alight, they stand for a moment with both wings raised straight up to display the beautiful axillar pattern ; a pattern distinctively different in each kind. And no doubt their end is served by telling friend or foe alike that this is such and such a species.

On the other hand birds whose wings in flight move too rapidly for observation are without markings on the underside.

Referring to the plate (Plate IV), several interesting conclusions may be drawn.

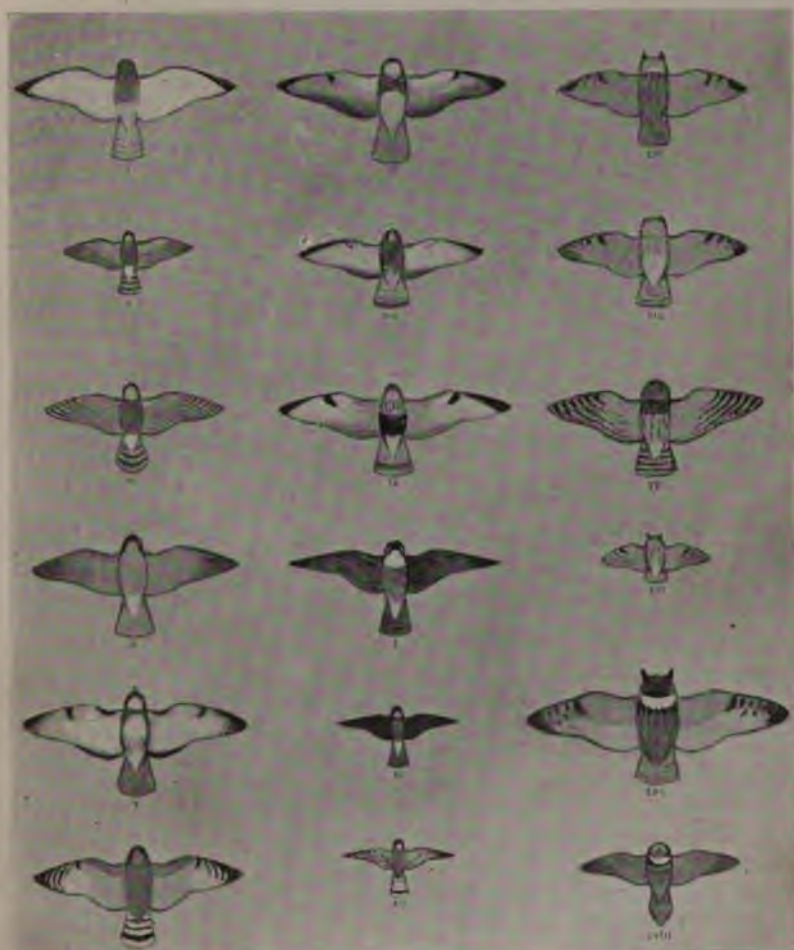
Though it is proverbially dangerous to classify animals with a view to one set of characters only, it is nevertheless interesting and often instructive. Among the Hawks the presence of the wrist spot characterizes the *Buteo* group including the Eagles and the Osprey.

The Falcons on the other hand, in common with the *Accipitres* and *Circus*, are without the wrist spots and have nebular banded primaries.

Exceptions to the rule that directive marks belong to the lower surface are seen in the Redtail, whose rufous tail is its most distinctive mark ; in the white rump-spot of the Marsh Hawk and the head-markings of Goshawk, Peregrines and Sparrow Hawks.

Among the Owls the wrist spot seems to characterize those that have ' ear tufts.'

In this brief paper and single plate I have limited myself to our northern birds of prey, but enough material has been gathered to justify a much more extended application of the generalizations indicated.



- I. Marsh Hawk.
- II. Sharp-shinned Hawk.
- III. Cooper's Hawk.
- IV. Goshawk.
- V. Red-tailed Hawk.
- VI. Red-shouldered Hawk.

- VII. Swainson's Hawk.
- VIII. Broad-winged Hawk.
- IX. Rough-legged Hawk.
- X. Duck Hawk.
- XI. Pigeon Hawk.
- XII. Sparrow Hawk.

- XIII. Long-eared Owl.
- XIV. Short-eared Owl.
- XV. Barred Owl.
- XVI. Screech Owl.
- XVII. Horned Owl.
- XVIII. Hawk Owl.

NEW RACE OF *SPINUS TRISTIS* FROM THE
PACIFIC COAST.

BY JOSEPH GRINNELL.

Spinus tristis salicamans, new subspecies. WILLOW
GOLDFINCH.

Winter Plumage:—Similar to corresponding plumage of eastern *S. tristis*, but browner with much broader wing-markings. In these respects it thus resembles *S. t. pallidus*, but is easily distinguishable by its extreme darkness.

Type, ♂ ad., No. 575, Coll. J. G., Pasadena, California, Dec. 21, 1895. Above dark olive-tawny; rump lighter; sides and flanks shaded with color of back; under tail-coverts white, tinged with tawny; throat gamboge yellow shading into dull green on middle of breast; abdomen pure white; sides of head like throat, excepting the ear-coverts which are of the color of the back. Wings and tail black; white skirtings of the tail-feathers scarcely exceeding those of *S. tristis*, but the markings on the wings much extended. Greater wing-coverts broadly tipped with white, forming a bar across the closed wing .18 of an inch wide; median coverts also broadly white tipped; lesser coverts olive-green; primaries narrowly tipped, and secondaries and tertiaries broadly tipped and outwardly margined with white. The white markings of the wings more or less tinged with tawny. Bill chrome yellow at base, dusky-tipped.

The female in winter plumage is similar to the male, but the black of the wings and tail is less pure, and the throat is duller colored; bill dusky.

Summer Plumage:—In this plumage the male is scarcely distinguishable from *S. tristis*; the black cap is, if anything, not so extended, and the yellow is not so pure and intense as in the eastern form. The white edgings of the wing-feathers are often entirely worn off, so that the wing is left with barely a trace of white. Bill, in life, darker, almost orange-ochraceous. The wing and tail average shorter, and the bill bulkier.

The female in breeding plumage is readily separable from the eastern bird by its much darker color. The female *S. tristis* is brightly tinged over the whole breast with yellowish green, while the female *S. t.*

	Wing.	Tail.	Culmen.	Gonys.	Bill from Nostril.	Depth of Bill.
¹ Average of 15 ad. ♂ of <i>Spinus tristis salicamans</i> from Pasadena, Cal.	2.76	1.97	.39	.32	.33	.27
Average of 15 ad. ♂ of <i>Spinus tristis</i> from Washington, D. C.	2.87	2.05	.36	.30	.31	.25

¹ Measurements are in inches.

salicamans is dull greenish yellow on the throat, becoming still dusker anteriorly. Even juveniles of the Willow Goldfinch just from the nest are deeper and darker colored than those of *S. tristis* proper.

Habitat. — Pacific Coast, from Washington to Southern California.

This geographical race seems as well pronounced as many others of the dark Pacific Coast forms. As might be expected, specimens from Oregon and Washington in winter plumage are slightly darker and browner than Southern California birds; but as the Willow Goldfinches are of a wandering disposition, and at least slightly migratory in the northern part of their habitat, this variation is not great.

The habitat of *salicamans* seems to be perfectly divided southerly from that of *pallidus* of the Great Basin. The Colorado Desert and the high Sierras form a broad territory from which I have seen no records, and which cannot be regularly crossed. The only specimens of an intermediate character are from the northern part of the Great Basin, where they seem to combine in part the characters of *tristis*, *pallidus* and *salicamans*, and are hardly referable to either. Several specimens of the latter from California show a considerable extension of the white on the inner webs of the tail-feathers, but so do occasional eastern birds.

I have examined 175 Goldfinches from nearly every State; the winter birds vary greatly in respect to the tone of coloration, but as this species is more or less migratory throughout its range, it is hard to draw any lines. Specimens from Texas (Fort Clark, Coll. E. A. Mearns) in particular, are light colored and grayer than any others, though showing no pronounced tendency toward *pallidus*.

If I judge rightly from specimens at hand, the spring moult of the Eastern Goldfinch takes place during two or three weeks in April. In Southern California, however, the spring moult in many individuals of *S. t. salicamans* begins in January and extends far into May. Thus a series of specimens taken from January to May, presents every gradation of plumage from winter to full summer, but none entirely in one or the other. They frequently breed early, before the spring moult is completed. I have adult males, taken with sets of eggs in April, that possess but a few of the bright yellow feathers, and the black crown is but imperfectly indicated. In certain tracts of feathers, I have

reason to believe there is a marked color change without moult or abrasion. The wing- and tail-feathers are moulted but once a year, in August and September.

The Willow Goldfinch is a characteristic inhabitant of the willow copses which border the marshes and sluggish streams of the lowlands. In summer, in Southern California, it is confined almost exclusively to these localities. But in fall and winter it gathers in small flocks and haunts the sunflower patches on the mesas, and even the mountain cañons, feeding on the buds and seeds of the sycamores and alders.

I am indebted to Mr. Robert Ridgway of the National Museum for suggestions in regard to this paper, and to the authorities of the National Museum for the loan of a series of *S. tristis* for comparison.

THE SITKAN KINGLET.

BY WILLIAM PALMER.

THREE adult summer Ruby-crowned Kinglets, collected by Mr. Joseph Grinnell near Sitka, Alaska, and two others, a spring male and an immature, collected at the same place by Fred. Bischoff, differ so much from many specimens of *Regulus calendula* with which I have compared them as to be worthy of separation by name.

Regulus calendula grinnelli, subs. nov. SITKAN KINGLET.

Differential Characters.—Above sooty dark olive (similar to *R. obscurus*) darkening to blackish along sides of vermilion crown patch. Beneath, throat and breast dusky gray; abdomen whitish tinged with yellowish. Bill slenderer at tip and broader at base than in *calendula* and laterally indented in the center. Wings with dark parts nearly black. Size between *R. calendula* and *R. obscurus*. Type, adult ♂, No. 160931, U. S. Nat. Mus. Collection (No. 1161, J. G. Coll.). Collected by Joseph Grinnell, June 23, 1896, Sitka, Alaska.

Immature [♂].—Above rich brownish olive, much darker than in *calendula* of same age. Beneath brighter than in same. Size smaller with longer and more slender bill. Wings darker with narrower and yellower bars. No. 45928, U. S. Nat. Mus. Coll., Sitka, 1866; Fred. Bischoff.

The Sitkan Kinglet is a smaller and darker bird than its near relative *R. calendula*, approaching closer, except in the coloring of its crown patch, to *R. obscurus* of Guadalupe Island. It lacks the grayness and paleness above and on the sides of the head and neck characteristic of *calendula*. The bill is larger and differently shaped. The wing is much darker, nearly black in places, and the anterior bar especially is narrower. The female bird I have not seen.

It is probable that *grinnelli* will prove to be a resident or a slightly migratory coast bird about Sitka and eastward and southward, as indicated by its shorter wings. More northern Alaskan examples are *calendula*. Two winter specimens, out of a large number examined from California, are differently intermediate; one being nearly similar in coloration to *grinnelli*, and both having similar bills, but with longer wings and tails. The character of the climate about Sitka is shown by the following extract from a 'circular' dated July 29, 1897, and compiled by the Chief of the Weather Bureau of the U. S. Department of Agriculture. "The fringe of islands that separates the mainland from the Pacific Ocean from Dixon Sound northward, and also a strip of the mainland for possibly 20 miles back from the sea, following the sweep of the coast as it curves to the northwestward to the western extremity of Alaska, form a distinct climatic division which may be termed temperate Alaska. The temperature rarely falls to zero; winter does not set in until about December 1, and by the last of May the snow has disappeared except on the mountains. The mean winter temperature of Sitka is 32.50, but little less than that of Washington, D. C. . . . The rainfall of temperate Alaska is notorious the world over not only as regards the quantity that falls, but also as to the manner of its falling, viz.: In long and incessant rains and drizzles. Cloud and fog naturally abound, there being on an average but 66 clear days in the year." Under such conditions *grinnelli* has been differentiated from its relative *calendula*. The type locality of this last is 'Pensylvania.'

My thanks are due Mr. Ridgway for the opportunity of examining the specimens in his care, and to Mr. Grinnell, for whom the form is named, for kindly presenting the type, together with many other specimens of birds, to the National Collection.

MEASUREMENTS OF REGULUS CALENDULA GRINNELL.

No.	Age.	Sex.	Date.	Locality.	Collector.	Wing.	Tail.	Culmen.	Tarsus.	Remarks.
45929	ad.	♂	May — 1866.	Sitka, Alaska.	Fred. Bischoff.	2.20	1.72	.14	.76	Yearling?
1108	"	♂	June 10, 1896.	" "	Joseph Grinnell.	2.20	1.71	.15	.80	Type.
1161	"	♂	" 23, "	" "	" "	2.22	1.72	.15	.80	
1230	"	♂	July 2, "	" "	" "	2.22	1.70	.15	.78	
45938	im.	♂	Sept. — 1866.	" "	Fred. Bischoff.	2.05	1.66	.13	.70	

MEASUREMENTS OF REGULUS CALENDULA.

58408	ad.	♂	May 9, 1869.	Fort Kenay, Alaska.	Fred. Bischoff.	2.35	1.78	.15	.80	
54391	"	♂	" 16, 1868.	Nulato, Alaska.	W. H. Dall.	2.30	1.78	.15	.75	
54392	"	♂	" 15, "	" "	" "	2.30	1.77	.15	.78	
19482	"	♂	" 17, 1860.	Ft. Resolution.	B. Kennicott.	2.31	1.81	.15	.80	
89277	"	♂	[July] 1881.	Moose Factory, H. B. Terr.	Walton Hayden.	2.31	1.76	.15	.73	
89276	"	♂	" "	" "	" "	2.33	1.81	.14	.80	
66706	"	♂	May 30, 1873.	Garland, Col.	H. W. Henshaw.	2.40	1.85	.15	.83	
110643	"	♂	" 7, 1886.	10,000 ft., "	Denis Gale.	2.42	1.90	.16	.80	
900888	"	♂	" 12, 1881.	Carberry, Manitoba.	E. E. Seton.	2.35	1.76	.14	.80	
119959	"	♂	Apr. 28, 1890.	Laurel, Md.	R. Ridgway.	2.26	1.73	.14	.82	
124194	"	♂	" 15, 1888.	Washington, D. C.	C. W. Richmond.	2.40	1.78	.15	.81	
124196	"	♂	" "	" "	" "	2.35	1.70	.15	.79	
1150	"	♂	" 17, 1883.	Arlington, Va.	W. Palmer.	2.35	1.86	.14	.76	
1565	"	♂	May 1, 1887.	" "	" "	2.30	1.80	.13	.80	
2703	"	♂	Apr. 12, 1891.	" "	" "	2.30	1.80	.14	.80	

INTERMEDIATES.

160932	ad.	♂	Jan. 10, 1891.	Los Angeles, Cal.	Wm. Berman.	2.38	1.80	.14	.77	Dark.
160933	"	♂	" " "	" "	" "	2.40	1.80	.14	.71	Paler.

GENERAL NOTES.

Early Notice of *Gavia adamsi*.—The 'Narrative' of Captain (later Sir) John Franklin's first Expedition contains, at p. 222 of the Philadelphia edition, 1824, under date of Sept. 26, 1820, while he was at Fort Enterprise, the following easily recognized description: "The last of the waterfowl that quitted us was a species of diver, of the same size with the *Colymbus arcticus*, but differing from it in the arrangement of the white spots on its plumage, and in having a yellowish white bill. This bird was occasionally caught in our fishing nets."—ELLIOTT COUES, *Washington, D. C.*

The Least Tern Breeding on Martha's Vineyard Island, Massachusetts.—On July 21–22, 1897, while on a walking trip along the south beach of Martha's Vineyard Island, Mass., I found a few pairs of Least Tern (*Sterna antillarum*) undoubtedly breeding near Job's Neck Pond, and a small colony of about fifty birds breeding near Black Point and Chilmark Ponds. An egg was found, but as Piping Plovers (*Egialitis meloda*) were also on the beach the identification is not positive. A fair number, however, of young birds were in the air.—REGINALD HEBER HOWE, JR., *Longwood, Mass.*

The Terns of Penikese—A Correction.—In my article on the 'Terns of Penikese Island, Massachusetts' (Auk, Vol. XIV, July, 1897, p. 283), at foot of the account of nests and eggs, for 40 nests on Gull Island, read 41 in both places. In *totals of eggs*, read 3099 instead of 2055 for Penikese, and 90 instead of 88 for Gull Island.—GEORGE H. MACKAY, *Nantucket, Mass.*

Capture of the Little Blue Heron in Connecticut.—A local gunner reported the capture of a strange Heron on August 4. Unfortunately it was sent off to be mounted before I could sex or even see it. The bird has just been shown me, however, mounted, and proves to be an adult *Ardea carulea* (sex, as I said before, unknown). The man who secured the specimen said that he found it in a small fresh-water 'pond hole' near this place. It was in company with another of the same species, and owing to their extreme shyness it was nearly a week before he could succeed in getting this one. The individual secured is in perfect plumage.—P. J. McCook, *Niantic, Ct.*

***Egialitis nivosa* in Florida.**—Between the 23d of February, this year, and the 2d of April I collected nineteen specimens of typical *Egialitis nivosa*. The first seven were collected Feb. 23, at the western end of Santa Rosa Island, near Fort Pickens. Between the 18th and the 24th of March a dozen specimens were taken on the Gulf beach of Santa Rosa Island, opposite Mary Esther P. O. In these specimens the females all

showed signs of breeding. Fully developed broken eggs were taken from two of the birds. Two specimens were taken at East Pass on Apr. 2. Many more birds might have been secured. The Snowy Plover was the most common of the shore birds at the localities named.—Geo. K. CHERRIE, *Field Museum, Chicago, Ill.*

Buteo albicaudatus in Arizona.—While driving across the desert between Florence and Red Rock, Arizona, a large nest upon which a Hawk was sitting was noticed close by the road. The nest was built in a mesquite tree and but ten feet from the ground.

The bird remained on the nest until I approached within easy gun shot. From the gray appearance of its head I at once took it for *Buteo swainsoni* and refrained from shooting it. A wave of the hand started the bird, which left the nest from the opposite side. As soon as the bird came in full view I realized my error, and hastily fired a shot after it; as the load was a light one, the bird flew away minus but a few feathers. I have seen in life and in their native wilds twenty-six species of our Hawk family, twenty of which I have taken, but this was a new one to me—a Hawk which I had never seen before.

Its white tail, including the rump, with broad terminal band of black, chestnut shoulders, gray head, and light colored breast with a few dark markings, and its size, which equals that of *Buteo borealis*, puts to rest all doubt but that the bird was *Buteo albicaudatus*.

Being so far from its ascribed range, I have looked up all of the available history bearing upon this species, and so far as I can learn no specimens have been taken in the United States outside of a small portion of the southern corner of Texas.

After leaving the nest the Hawk flew to the dead top of a mesquite, a quarter of a mile away. I started after it at once, hoping that I might yet secure the parent of the egg which I had just taken. I had crossed probably one fourth of the intervening distance, when the bird arose with powerful strokes of its wings, circling upward until but a speck in the sky. I could not tarry long in hope of securing the bird, and with much reluctance the journey was resumed. The distance between Florence and Red Rock is almost forty miles, between which places no water fit for man or beast is to be found.

The egg taken was far advanced in incubation. In size, shape and color it resembles one of the lighter unmarked eggs of *Buteo borealis*. —GEORGE F. BRENINGER, *Phoenix, Arizona.*

Additional Records of the Flammulated Owl (*Megascops flammeola*) in Colorado.—On the 27th of May, 1897, I secured a set of two fresh eggs, and on the 29th a set of three eggs slightly incubated, of the Flammulated Screech Owl, and in both cases secured the female bird. The first set was secured in an old Woodpecker's hole in an old pine stub, about eighteen feet from the ground, at an altitude of about 7200 feet,

and the other in a dead quaking ash about twenty feet from the ground and at an altitude of about 7800 feet.

In neither case was there any nest built, the eggs being deposited on the litter at the bottom of the hole. Diligent search did not secure the male birds.

These nests were in the foothills about thirty miles nearly west southwest from Pueblo, Colorado.—D. P. INGRAHAM, *Beulah, Colorado*.

Nesting of the Short-eared Owl in Southern California.—On March 27, 1896, Mr. H. L. Rivers and the writer found a nest of this bird (*Asio accipitrinus*) containing six eggs, the incubation varying from very slight to well advanced. The location was near low meadow ground about five miles from the coast in this County, but the nest was about twenty-six feet up in the top of a thick-foliaged oak, among some sycamores bordering a dry stream bed. Another unoccupied nest was placed two or three feet higher in the opposite side of the same tree. Both nests were composed of sticks, lined with oak leaves and a few feathers, the depression in each being very slight.

When within a few feet of the occupied nest the bird flew off and being joined by its mate, the pair held a 'pow wow' in the grass, uttering squeals like a rat. While the nest was being examined one bird perched almost at arm's length in the foliage of the tree.

Two weeks later, when I revisited the locality, neither bird was seen, but the nest, which had previously been empty, contained a dried up egg without a shell.

Of this bird Captain Bendire said "it is not improbable that it may sometimes breed in California and Nevada."—M. L. WICKS, JR., *Los Angeles, Cal.*

Partnership Nesting of Valley Partridge and Long-tailed Chat.—The nest was discovered by a little girl, and was composed of grass and straws placed in a small depression of the ground above which it projected slightly; over all was a dead eucalyptus limb to which the dry leaves still clung. The locality was this County, within five feet of a road which had been quite frequently traveled up to a week before, at which time the road had been changed. Not thirty feet from the spot a cluster of wild blackberry vines had been burnt down a few months previous; in them a Chat (*Icteria virens longicauda*), probably the same one, had nested for years.

The Partridge (*Callipepla californica vallicola*) was flushed from the nest when first discovered; it had been covering two of its own and three Chat eggs, the Chat itself not being seen. On a second visit that afternoon the Chat flew off; the Partridge was not visible. The next day at noon a third trip was made; the Chat was on the nest, the female Partridge being in the vicinity. The number of Chat eggs had been increased to four; the Partridge eggs were still two in number.—M. L. WICKS, JR., *Los Angeles, Cal.*

Nesting Habits of *Empidonax insulicola*. — I have just read with great interest in 'The Auk' for July, 1897, the paper by Mr. Harry C. Oberholser, describing the *Empidonax* of the Santa Barbara group as a new species under the name *insulicola*. Mr. Oberholser is of course correct in assuming that I mistook the bird for *E. difficilis* in my list of Santa Cruz birds (Auk, IV, 1887, 329), an error to be explained, though not excused, by the fact that I shot no specimens of this species.

If *insulicola* receives general recognition, as appears probable, some account of its habits, nest and eggs will be of interest.

During my visit to Santa Cruz in the summer of 1886 I saw the Island Flycatchers (if I may suggest a vernacular name) constantly; indeed they were among the most abundant of the land birds. They were to be found chiefly along the rocky, wooded cañons, and their habits closely resembled those of the Wood Pewee. The Island Flycatchers, however, seem to prefer a lower perch, generally within six or eight feet from the ground.

Their note is a disyllabic, lisping call difficult to describe; not wholly unlike the characteristic note of the Least Flycatcher, but much less forcible and metallic.

The first nest which I found was built actually in our camp. A stream, swollen by winter rains to the size of a river, had undermined its banks; shrinking in summer to a mere mountain brook, it had left a high, concave bank on either side. Under one of these arching banks was the nest, neatly concealed among the roots which descended from the trees above. It was placed about seven feet above the level of the stream, and not more than twelve feet away from our camp table, which we had set under this bank to secure protection from the sun. The nest was rather small, saucer-shaped, and composed of material evidently gathered from the bed of the stream, — strips of bark, dead grasses and shreds of dry, bleached vegetable matter. It was neatly and compactly made. The two eggs were dead white, not creamy or buff, and sparsely dotted with reddish about the larger end.

From the first we were careful not to frighten the birds, and they soon became accustomed to our presence. One bird would be almost constantly on the nest, while the other would establish a perch on a bush just across the stream, darting off now and then to catch insects on the wing, and frequently bringing them to its mate. The eggs were hatched on the 13th and 14th respectively, and then the parents were kept very busy supplying the young birds with food. On the 18th the young were mysteriously removed from the nest, probably by the parent birds, and I saw no more of that particular family.

On July 10 I found a pair of Island Flycatchers building their nest in a small pocket in the face of a huge projecting rock over the same stream, half a mile above our camp. It was a situation inaccessible without the aid of a long ladder or a rope, and I was unable to examine the nest.

On July 18 I found a bird's nest, which was built in one of the sea-side caves for which Santa Cruz is famous. This was a very compact and

handsome nest, built directly against the wall of rock, five feet above the floor of the cave. The bird was sitting when I found the nest, and returned as soon as I left the cave. There were three eggs, two evidently much incubated and one infertile, which latter I took. These eggs were creamy white, with pale reddish specks and dots about the larger end. The specimen which I secured is now in the collection of Brown University, Providence, R. I.

The Island Flycatchers had nearly all left Santa Cruz (or retreated to distant parts of the island) by the first of August, and I saw none after August 10. — ELI WHITNEY BLACK, *Syracuse, N. Y.*

The White-throated Sparrow Breeding at Hubbardston, Mass. — A few pairs of *Zonotrichia albicollis* breed each year, or have for the last two years, among the lower hills (about 1000 feet elevation) about Wachusett Mountain in Hubbardston, Mass. — REGINALD HEBER HOWE, *Jr., Longwood, Mass.*

Henslow's Sparrow in Michigan — A Correction. — Dr. Charles W. Richmond, Assistant Curator, Department of Birds, U. S. National Museum, calls my attention to a misprint in my article on this species in the April 'Auk' (XIV, p. 220) where, in an extract from his letter, he is made to say "this species ought not to be seen in Michigan." "Seen" should read "rare." I think, however, that Henslow's Sparrow may very properly be termed rare in this State. Should one offer a reward for specimens of this bird taken here he would be surprised at the very few he would obtain. A young ornithologist, in reporting his observations, might easily mistake the Grasshopper Sparrow for this species. — JAMES B. PURDY, *Plymouth, Mich.*

Nesting of *Cardinalis cardinalis* at Nyack, N. Y. — During the spring of 1897 there have been not less than six instances of the breeding of *Cardinalis cardinalis* at Nyack, N. Y. Mr. Rowley, of the American Museum of Natural History, tells me that a pair of this species nested at Hastings, N. Y. So far as is known, I believe this constitutes the northernmost breeding record of this bird. — C. L. BROWNELL, *Nyack, N. Y.*

Notes on the Moults and certain Plumage Phases of *Piranga rubra*. — In 'The Auk' for July, 1891 (pp. 315, 316) I described an instance wherein the Summer Tanager (*P. rubra*), a female, had assumed the plumage of the male. That specimen was collected by my son, Percy Shufeldt, and has since been added to the collections of the U. S. National Museum. Since that date the same collector has added to his private series, thirteen more specimens of this species, and as some of these exhibit certain notable conditions of the moult and plumage, it is my intention here to pass a few remarks upon the more interesting of these. Twelve of the skins are from male birds, while the thirteenth is from an adult female, taken in

August, 1895, and exhibits the autumnal plumage nearly completed. All these individuals were collected either in the northeastern part of the District of Columbia, or in the adjacent parts of southern Maryland. Of the seven red males in the series taken at random from April 18, 1896, to July 15, only one of them shows the full and completed plumage, and that the one shot on the first-mentioned date. All of the others present more or less green in the wings and tail, and one with a greenish patch on the throat. A specimen, an old male, shot on the 15th of July, 1896, has both the plumage of the entire body and tail red, while the secondaries and primaries of the wings are in the process of the moult,—the new feathers likewise coming in *red*,—the same applying to the wing-coverts. This tends to prove, in so far at least as this particular specimen is concerned, that in the male of this species in the autumnal moult they reassume the red plumage. Another specimen, which I take to be a young male of the first spring, and shot on May 14, 1897, has the body plumage red, with red and green wings, but the tail exactly half red and half green,—the green feathers on the left half of the tail being half a centimeter shorter than the red ones. All these feathers are new, with the exception of one of the green ones, and it is found next to the outermost one of that side. Now the first plumage taken on by both sexes of this species after leaving the nest is the olive-green plumage corresponding to that of the normal adult females, and in that plumage the birds of the year migrate south in the autumn. So that the aforesaid specimen shot on May 14, possibly met with an accident, losing all the feathers of the left side of the tail with the exception of the one mentioned, and these being replaced came in *green*. This seems to be the only explanation to account for the state of affairs seen in this individual.

In another specimen of this series, a young male of the first autumn in the full green plumage, shows a broadish transverse red bar across the green and perfected feathers of the tail.

Perhaps the most interesting specimen in the collection is that of a female (adult) which in the spring had, in part, the red plumage of the male, and when collected on the 2d of August, 1897, was in full moult,—the red feathers of the entire plumage being replaced by the green ones of the adult female bird with normal coloration. This particular example then, would tend to show that when the females of this species assume in the spring the red plumage of the males, that in the autumnal moult they pass back again to the plumage of the normally-colored females,—whereas the *old* males reassume the red plumage.—R. W. SHUFELDT, *Smithsonian Institution, Washington, D. C.*

Purple Martins (*Progne subis*) Breeding in Electric Arc-light Caps.—During a recent visit to Vergennes, Vt., I noticed that many pairs of Purple Martins were nesting in the caps suspended over the electric street lamps in the heart of that rural city. Indications of the same proclivity to utilize the street lamps for domestic purposes were shown by

Purple Martins that I watched near North Adams, Mass., in 1895, and Mr. Brewster tells me that he found a pair of these birds breeding in a similar situation in Colebrook, N. H., in 1896. Probably many of the readers of 'The Auk' who live in a Martin region are familiar with this nesting habit of the Martin, though I do not remember to have seen any mention of it in print. The late Frank Bolles ('Boston Post,' Feb. 3, 1891) facetiously remarked that the House Sparrow's propensity to build its nest and rear its young "on the edge of Hades" (*viz.*, in electric-lamp reflectors) was sufficient evidence that it was the offspring of evil and justly under the ban of the Commonwealth. I had always deemed this a just count against the Sparrow, until I discerned the same disposition in our own favorite Martin! I hope the lamp-tenders of Vergennes discriminate between Martins and Sparrows in their daily visits to the lamps.—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

The Tree Swallow Breeding in Virginia.—The second edition of the A. O. U. Check-List gives the breeding range of *Tachycineta bicolor* as "breeding from the Fur Countries south to New Jersey," etc. Dr. Rives in his 'Birds of the Virginias,' page 77, says of this species: "Common summer resident of the Tidewater region from April to September, but rare away from the rivers." He mentions no instance of its breeding, however. Mr. E. J. Brown, formerly of Washington, tells me that in May, 1894, he found a nest containing eggs, on Smith's Island, Virginia. Mr. P. H. Aylett, of Aylett, King William County, Virginia, wrote me some years ago about a pair which reared their young one summer at that place. I afterwards saw the site—a cherry stump in a meadow. The birds are fairly numerous on Smith's Island in summer, and I found a nest containing three young, in a hollow tree near the ocean beach, on June 10, 1897.—WILLIAM PALMER, *Washington, D. C.*

Rough-winged Swallows (*Stelgidopteryx serripennis*) in Greene and Ulster Counties, N. Y.—On May 29, 1897, I found a pair of Rough-winged Swallows beginning to build in Palenville, Greene County, June 11. The nest with six eggs was procured. At Quarryville (about five miles south of Palenville, being in the extreme northern part of Ulster County) there is a small colony of these birds breeding regularly every year, in the crevices of the rocks. Here I took a male specimen June 27, 1896, and a nest containing five eggs June 29, 1897. These specimens were identified by Mr. Frank M. Chapman.—S. H. CHUBB, *New York City.*

Peculiar Nesting of the Maryland Yellow-throat.—While collecting in a large slough in Jackson County, Minnesota, on June 9, 1897, amid the green rushes where Long- and Short-billed Marsh Wrens were breeding, I ran across a pair of Yellow-throats (*Geothlypis trichas*) in some high rushes in about four feet of water, and upon investigating I found the nest placed almost level with the water in a thick clump of cat-tails, over fifty feet from shore, and right in the midst of a colony of Marsh

Wrens. The nest was constructed of the usual materials — leaves, bark, and grasses — lined with grape-vine bark and hair, and contained two fresh eggs. This is, I believe, the first recorded instance of the Yellow-throat breeding over water, and is indeed surprising, as the nests are usually to be found in dense woods far from water. — WALTON I. WHITEHILL, *St. Paul, Minn.*

The Names of Two Mexican Wrens. — It is now generally believed that Baird was in error when he identified his *Thryothorus bewickii leucogaster* (Baird's Wren, so-called) with the *Troglodytes leucogaster* of Gould (Proc. Zool. Soc., 1836, 89; Tamaulipas). This belief was first expressed by Messrs. Sclater and Salvin (Nomencl. Av. Neotrop., 1873, 155), who identified Gould's bird with *Cyphorhinus pusillus* Scl. (Proc. Zool. Soc., 1859, 372) = *Uropsila leucogastra* Scl. & Salv., 1873. Accordingly Messrs. Salvin and Godman (Biol. Centr.-Amer., Aves, I, 1880, 95) have renamed Baird's bird *Thryothorus bairdi*. It appears to me that these authors, by beginning their history of Baird's Wren with the 'Review of American Birds,' 1864, instead of the 'Birds of North America,' 1858, have overlooked the fact that Baird had Gould's type of *Troglodytes leucogaster*. On page XV of the 'Birds of North America,' Baird says that he received from Gould about 150 species of birds, including some from Mexico, and on page 363 he says that Gould's specimen of *Troglodytes leucogaster* from Tamaulipas agrees perfectly with others in the Smithsonian Museum, — the "others" being the identical specimens which he afterward (in Rev. Amer. Birds) separated from the typical *Thryothorus bewickii* as *T. b. leucogaster*. Gould's type is not included in Baird's list of specimens in the Smithsonian Institution, probably because he intended to return it to Gould. It appears that Messrs. Sclater, Salvin, and Godman did not have Gould's type of *Troglodytes leucogaster* (see Biol. Centr.-Amer., Aves, I, 78); does it, then, seem reasonable to prefer their determination of *Troglodytes leucogaster* Gld. to Baird's, who had not only the type of *T. leucogaster* Gld. but also one of the types of *Cyphorhinus pusillus* Scl. (see Rev. Amer. Birds, p. 120)? Messrs. Sclater and Salvin's opinion concerning the identity of Gould's bird doubtless had its origin in the ill fit of Gould's measurements and the incompleteness of his diagnosis when confronted with skins of Baird's Wren. Gould's measurements do not seem to fit either Baird's *leucogaster* or Sclater's *pusillus*, for that matter:

	Length.	Wing.	Tail.	Bill.	Tarsus.	
<i>Troglodytes leucogaster</i> Gld.	2.75	2	1.12	.75	.33	(Gould.)
<i>Cyphorhinus pusillus</i> Scl.	3.5	1.75	1.1	.7	.75	(Sclater.)
	3.5	2.05	1.35			(Baird.)
<i>Thryothorus bewickii leucogaster</i> Bd.	4.7	2.1	2	.75	.6	(S. & G.)
	5-5.75	2.1-2.4	2.1-2.55	.5-.6	.68-.78	(Ridgw.)

Canon XLIII of the A. O. U. Code of Nomenclature provides that "in no case is a type specimen to be accepted as the basis of a specific or

sub-specific name, when it radically disagrees with or is contradictory to the characters given in the diagnosis or description based upon it." This ruling, if strictly enforced, precludes the use of the name *leucogaster* for Baird's Wren. Under such circumstances, following the directions given in the Code, the bird must be "reintroduced into science under a new name, as a new species, and with a proper description." Mr. Ridgway (Auk, IV, 1887, 349) long ago maintained that Dr. Hartlaub described Baird's Wren, as *Thryothorus murinus*, in 1852 (Rev. et Mag. de Zool., 2d Sér., IV, 4),—twelve years before Baird called it *Thryothorus bewickii leucogaster* (Gld.), and twenty-eight years before Messrs. Salvin and Godman again introduced it as *Thryothorus bairdi*.

Baird's Wren has figured in both the first and second editions of the A. O. U. Check-List as *Thryothorus bewickii bairdi* (Salv. & Godm.). In the Eighth Supplement to the Check-List (Auk, XIV, 1897, 131), this name is changed to *T. b. leucogaster* Baird (*nec* Gould!) in compliance with the views of Dr. Coues (Auk, XIII, 1896, 345). It seems to me that Mr. Ridgway, although starting with the false premise that *Troglodytes leucogaster* Gld. equals *Cyphorhinus pusillus* Scl., arrived at the correct name for Baird's Wren when he called it *Thryothorus bewickii murinus* (Hartl.). If Mr. Ridgway's determination of *murinus* be questioned, it should be tested by an appeal to Dr. Hartlaub's types in the Museums of Bremen and Hamburg; if it prove erroneous, then the name *bairdi* Salv. & Godm. becomes available as the subspecific name for Baird's Wren. After what has been shown above concerning Baird's acquaintance with the type of *Troglodytes leucogaster* Gld., it seems no longer justifiable to identify it with *Cyphorhinus pusillus* Scl., which should now be known as *Hemiura pusilla* (Scl.), not *H. leucogastra* (Gld.).—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

Rare Birds in the Vicinity of Philadelphia.¹—On Sept. 5, 1894, a specimen of *Contopus borealis* was secured near Holmesburg, Pa., and on May 18, 1895, a specimen of *Empidonax traillii alnorum* was secured.

This is, I believe, the first definite record for the latter in this part of the State, as I am unable to find any in Stone's 'Birds of Eastern Pennsylvania and New Jersey.'

While collecting in Tinicum Township, Delaware Co., Pa., May 15, 1897, I secured a male *Piranga rubra*. This is the third record during the last twenty years for this species in this part of the State.—H. W. FOWLER, *Holmesburg, Philadelphia, Pa.*

Notes on Some Ontario Birds.—Occasionally Brünnich's Murre (*Uria lomvia*) has been reported in Lake Ontario late in the fall and in early winter; in fact this bird is not an infrequent visitor at Kingston in the

¹ Republished, with an addition and correction, from the July number of 'The Auk' (XIV, p. 326), where the authorship was accidentally credited to Mr. Witmer Stone.—EDD.

early winter. This summer three Murres were observed early in July. One was captured alive by Chas. M. Clarke on July 8, but died in a few days, and the others were found dead by Mr. Edwin Beaupre, Jr., and a friend, about a week after this date. All three birds died of starvation, without doubt.

The Knot (*Tringa canutus*), reported as very rare in Ontario, visits Kingston from time to time, and on June 2, 1897, Mr. Edwin Beaupre and I saw several on Amherst Island, one of which was secured. The one shot by Mr. Beaupre was with a large flock of Golden Plovers.

McIlwraith in his excellent work, 'Birds of Ontario,' reports the Bartramian Sandpiper (*Bartramia longicauda*) as seldom seen in Ontario. This bird has of late years taken possession of Simcoe Island, Wolfe Island, Amherst Island and many of the fields between Lansdowne and Napanee, a distance of fifty miles, and is found breeding freely. It is not disturbed by the farmers and appears to be steadily increasing in numbers.

The Black Tern (*Hydrochelidon nigra surinamensis*), not reported in the east of Ontario, breeds at Kingston and Lansdowne. The Rev. C. J. Young has taken eggs at Lansdowne, and this year I found several pairs breeding in Cataragui Marsh. Have observed the bird regularly for many years.

The White-rumped Shrike reported as rare by McIlwraith in the east of Ontario, is abundant about Kingston, probably owing to the fact that several varieties of thorns are common here.—C. K. CLARKE, M.D., Kingston, Ontario, Can.

Rare Birds taken in Toronto and Vicinity.—*Ammodramus leconteii*. LECONTE'S SPARROW.—A male specimen was given to me as an Acadian Sharp-tailed Sparrow, taken May 5, 1897, in Toronto. This is the first one known to have been taken in Ontario.

Colymbus holboellii. HOLBELL'S GREBE.—Six specimens have been taken in Toronto between April 26 and May 1, three of which are now in my collection.

Lagopus lagopus. WILLOW PTARMIGAN.—While visiting a taxidermist shop in Toronto my attention was drawn to this specimen, which was taken in Whitby, thirty miles east of Toronto on May 15, 1897. Having a friend there I wrote to him, and he got for me the particulars about the bird, which is now in my collection. It is in its winter plumage, with the exception of a few brown feathers which are appearing about the head and neck. The tail-feathers have a slight brown tinge. Sex not given.

Ardetta neoxena. CORY'S LEAST BITTERN.—A male was taken in Toronto May 14 by G. Pearce. The plumage shows traces of albinistic markings, as follows: one white feather on the abdomen near the vent, and four white feathers on the inside of each tibia. It is now in my collection.

The female was taken in the same locality by the same person on June 30, 1897,—a very fine specimen with plumage normal and no traces of albinism.

Ægialitis nivosa. SNOWY PLOVER. — On July 6 there was brought to me for my inspection a Snowy Plover in the flesh. So far as is known this is the third record for Toronto. — J. H. AMES, *Toronto, Canada*.

Disgorgement among Song-birds. — In response to the suggestion appended to Mr. Joseph Grinnell's interesting note in regard to 'Disgorgement among Song Birds,' which appeared in the last number of 'The Auk,' I am moved to jot the following.

While observing the nesting habits of Wood Thrushes — more than a score of years ago — my curiosity was first aroused as to how those birds managed to so perfectly clean — polish, I might say — the quantity of cherry stones I used to find in their nests. After a time I noticed that the parent birds fed to their young broods the cherries whole, as they were brought from the trees, scattered sparsely in the adjacent woods. These cherries, I may say, were noticeably smaller than such as are of average market size, being such as are termed by botanists 'escapes,' and it was not uncommon to find a fair handful of the stones in each nest in a proportion of those examined.

But two or three years later, when the chance occurred of watching the process of rearing by hand a couple of broods of Wood Thrushes. I observed that when the half-fledged young ones were fed with small cherries, unbroken, that afterwards at short intervals — as the pulp was digested — they raised the cherry stones in their throats and expelled them, perfectly clean, from their bills. Occasionally only a single stone was thus ejected, but, more generally, two or three at a time would follow each other rapidly. And in this way it happened that I first understood how it came about that the cherry stones found in Wood Thrushes' nests were polished.

Since then, however, I have had many opportunities of observing that the habit of disgorging the stones of small fruits and the large seeds of some berries, such as those of the dogwood and Virginia creeper, is common to various species of birds; and besides those named, in this respect, by Mr. Grinnell, I have witnessed it in all our true Thrushes except (for lack of opportunity) Bicknell's Thrush. Among Warblers, etc., I have noticed that this habit is possessed by the Red-eyed Vireo, Myrtle Bird, European Robin and larger Pettichaps — this latter observed only in captivity.

But as far as my observations extend, I am inclined to think that such birds as are both insectivorous and frugivorous and whose practice is also, wholly or mainly, to peck their food to little bits before swallowing it, as is the case with the Brown Thrushes and Catbird, for examples, do not possess this habit of disgorgement. — THOMAS PROCTOR, *Brooklyn, N. Y.*

Disgorgement of Cherry Stones again Noted. — Mr. Joseph Grinnell's notes on the 'Disgorgement of Song-birds,' Auk, Vol. XIV, 1897, page 318, have prompted me to describe a similar experience I had this summer while photographing a nest near Philadelphia, Pa. After tying my

camera to a tree and focusing for a close range picture on a nest bulging with young Robins, I noticed them disgorging cherry stones, one of which dropped on the side of the nest, and rolled back inside. The parent birds almost universally remove all excrement from the nest, but it was evident that they did not trouble themselves about removing the clean cherry stones, and on examination of several nests of the Robin, Wood Robin, and Catbird, I found as usual that they each contained from ten to fifteen stones, but, as I had never specially noted before, were perfectly clean, and must have been disgorged in all cases.

I concluded, therefore, that nature has only provided the small bird with this means of getting rid of the stone, which is too large to pass beyond the cavity of the stomach. I only wonder that I never thought of it before, for during cherry season, in nearly every old nest, at least of the varieties mentioned, will be found a clean little pile of cherry stones.— WM. L. BAILY, *Ardmore, Pa.*

Birds' Tongues in Pictures.—During this spring I have had especial opportunity to study song birds (Vireos, Warblers, House Wren, Catbird, Sparrows, Grackles, Orioles),¹ and one point of interest which I have determined to my satisfaction is that from a distance of a few feet, with a strong opera glass, a bird's tongue *cannot* be seen between the open mandibles when singing. In almost all drawings or paintings of singing birds one will find the elevated tongue shown clearly. The musical instrument of a bird is not its tongue, as almost every one knows; the sounds and modulations are produced in the throat and therefore why should the tongue be expected to show (except, perhaps, as a modulator).

To cut the tongue out of a picture of a singing bird detracts from it and looks exceedingly strange, solely because we are used to seeing it so in likenesses, but not in life—but the portrait nevertheless becomes true to nature.— REGINALD HEBER HOWE, JR., *Longwood, Mass.*

RECENT LITERATURE.

Citizen Bird.²—'Citizen Bird' is a unique contribution to the literature of Ornithology. It addresses an audience which ornithologists had previously neglected and does it in so attractive a manner that the reader's attention is held from cover to cover. With perhaps no desire

¹ I had no opportunity of observing Thrushes, except the Robin.

² Citizen Bird | Scenes from Bird-Life in Plain | English for Beginners | By Mabel Osgood Wright | And | Elliott Coues | With one hundred and eleven Illustrations | By Louis Agassiz Fuertes | New York | The Macmillan Company | London: Macmillan & Co., Ltd. | 1897 | All rights reserved | 12mo. pp. xiv + 430. Engraved half-tones in text, 111. (Price, \$1.50.)

for a knowledge of birds he is deluded into reading a story where the human element commands his interest, and if while reading he does not soon learn to care for birds for their own sake, it is because his nature is abnormally unsympathetic.

The plan of the book will explain how well adapted it is to achieve this end. 'Dr. Roy Hunter' with his daughter, nephew and niece, a country boy and two or three others, are passing the summer at 'Orchard Farm,' and the book is made up of a series of field and study talks in which the children are eager questioners and often keen observers, while the Doctor is ever present to explain in an always interesting manner the significance of the scenes from bird-life by which they are surrounded. The children themselves are so bright, the Doctor so responsive, that other children reading this record of a summer with the birds will not only become attached to its human characters, but to its feathered ones as well, and at the same time will unconsciously absorb an extensive and correct knowledge of ornithology.

The text is made more real by Mr. Fuertes's beautiful drawings, and their charm in turn is increased by the text, which makes us regard them as we would the portraits of the leading characters in a fascinating story. It is evident, therefore, that both authors and illustrator have made not only an important contribution to literature and art, but that they have rendered an invaluable service to science in so sharpening the entering wedge of bird-lore, that it may now find openings which before were closed to it. — F. M. C.

Birds of Maine.¹ — Mr. Knight and his *confrères* deserve the thanks of all ornithologists for rendering accessible so large an amount of information concerning the birds of Maine. The list proper enumerates 316 species and subspecies as known to occur in the State. After each species an outline of its general status as a Maine bird is given, and this is followed by a brief statement of its manner of occurrence in each county, based on the notes of many observers whose names are placed in parentheses after the remarks for which they are responsible. To this list, occupying pp. 13-132, are appended sections on 'Introduced Species,' the Domestic Pigeon and House Sparrow being here included; a 'Hypothetical List,' giving 27 species, and a 'Summary' in which an analysis of the avifauna of the State is presented. There is also a brief but well considered essay on 'Faunal Areas' with special reference to the distribution of life in Maine, while a Bibliography and an Index complete an excellent piece of work. — F. M. C.

¹ Bulletin No. 3. | The University of Maine | Department of Natural History. | A List of the | Birds of Maine | Showing their Distribution by Counties and their Status in each County. | Prepared under the auspices of the United Ornithologists of Maine | By Ora W. Knight, B. S., | Assistant in Natural History. | Augusta | Kennebec Journal Print | 1897.—8vo. pp. 184.

Winge on Birds at the Danish Lighthouses.—Mr. Herluf Winge's fourteenth annual report on the migration of Danish birds is of special interest to students of American ornithology on account of the further records that it contains of the little known Petrel, *Oceanodroma cryptoleucura* Ridgway, added to our fauna by Mr. Wm. Palmer in the last number of 'The Auk.' Two of these birds struck Danish lightships during the autumnal migration of 1896, one at Drogden, a few miles south of Copenhagen, on September 19, and another at Kobbegrunden, in the Kattegat, on October 11. After comparison of these specimens with the 16 skins of *O. leucorhoa* in the Zoölogical Museum at Copenhagen Mr. Winge concludes that the characters of *O. cryptoleucura* are purely individual and that typical examples of the so-called species may be expected to occur among any of the colonies of Leach's Petrel. It is extremely doubtful whether this view of the relationship of the bird to *O. leucorhoa* can be sustained, as the characters described by Mr. Ridgway and Mr. Palmer can hardly be reconciled with any such hypothesis.

The fourteen yearly reports on Danish birds,¹ the last twelve of which

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- ¹ I. Jahresbericht (1883) | über die | ornithologischen Beobachtungsstationen in Dänemark. | Von | Chr. Fr. Lütken | Dr. phil. | < Ornis, I, Heft 1, pp. 82-147. 1885.
II. Jahresbericht (1884), etc. as above. *Ibid.*, II, pp. 49-100. 1886.
III. Report on Birds in Danmark in 1885 | Compiled by | Oluf Winge | *Ibid.*, II, Heft IV, pp. 551-600. 1886.
IV. Report on Birds in Danmark in 1886 | Compiled by | Oluf Winge | *Ibid.*, IV, Heft III, pp. 369-440, Taf. 1. 1888.
V. Report on Birds in Danmark in 1887 | Compiled by | Herluf Winge | *Ibid.*, VI, Heft 2 and 3, pp. 345-399. 1890.
6. Fuglene ved de danske Fyr i 1888 | 6te Aarsberetning om danske Fugle | Ved | Herluf Winge | (Med et Kort) | < Vidensk. Meddel. fra den naturh. Forening i Kbhvn. XLII, pp. 54-105 (1890) 1891.
7. Fuglene, etc., i 1889, 7de Aarsberetning, etc., *Ibid.*, XLII, pp. 106-157 (1890), 1891.
8. Fuglene, etc., i 1890, 8de Aarsberetning, etc. *Ibid.*, XLIII, pp. 61-132, (1891), 1892.
9. Fuglene, etc., i 1891, 9de Aarsberetning, etc. *Ibid.*, XLIV, pp. 77-130, Tab. IV (1892), 1893.
10. Fuglene, etc., i 1892, 10de Aarsberetning, etc. *Ibid.*, XLV, pp. 21-77 (1893) 1894.
11. Fuglene, etc., i 1893, 11te Aarsberetning, etc. *Ibid.*, XLVI, pp. 15-71 (1894) 1895.
12. Fuglene ved de danske Fyr i 1894 | 12te Aarsberetning om danske Fugle | Med Tillæg om nogle islandske og grønlandske Fugle | Ved | Herluf Winge | *Ibid.*, XLVII, pp. 1-66 (1895), 1896.
13. Fuglene, etc., i 1895, 13de Aarsberetning, etc., (as in titles previous to No. 12). *Ibid.*, XLVIII, pp. 65-117 (1896), 1897.
14. Fuglene, etc., i 1896, 14de Aarsberetning, etc. *Ibid.*, pp. 238-310. 1897.

Mr. Winge and his brother have published, are almost wholly unknown to American readers. This is to be regretted, as a more admirably conceived and executed series of observations could scarcely be imagined, and the work might well be used as a model to be followed—with necessary modifications to suit local conditions—by local ornithological societies. With the exception of some of the earliest papers, all are arranged on essentially the same plan, so that a brief outline of the last will give an idea of the scope and contents of each number of the series.

The report for 1896 occupies 72 pages, slightly more than the average, and is divided into six sections. The first of these contains the following miscellaneous introductory matter: A statement of the number of species (65) and specimens (1048) of birds sent by light keepers to the Zoölogical Museum at Copenhagen; a list of the lights (35) from which returns were received; a nominal list of the species represented, together with the number of specimens of each received, as well as the number killed where this is known; a statement of the total number of species recorded during the past ten years (134); the author's personal observations on the movements of birds in the neighborhood of Copenhagen. The five sections into which the main body of the report is divided are arranged under headings which may be translated as follows: (1) Catalogue of the Birds sent in from the Lights; (2) Summary of the Nights on which Birds came to the Lights; (3) Various Observations from the Lights; (4) Unusual Occurrences in 1896; (5) Observations from the Faroes.

In the first section the nominal list from the introduction is repeated, now, however, profusely annotated, always with the locality and date for each specimen sent in (for some species this alone occupies a page or more of text arranged chronologically and with the months alone paragraphed), and often with extended critical remarks of varied character.

The second section consists of the keepers' observations on weather conditions during the nights when birds were observed, together with their accounts of the actions of the birds themselves. In this section the matter is arranged chronologically, the various reports for each night grouped together. The keepers naturally refer to the birds by their common Danish names, but at the end of each day's series of observations Mr. Winge gives technical names of such species as were forwarded to the Zoölogical Museum. Owing to the author's peculiar views on the subject of nomenclature the vernacular names are to an American reader in many instances the more intelligible of the two.

In the third section the keeper's report from each light for the whole year is given entire. These reports are not classified alphabetically, but are arranged in a rough geographical sequence, beginning with the lights on the west coast and ending with those at the extreme southeast. Some of these reports cover more than three pages of running text and indicate a remarkable amount of interest on the part of the keepers.

The fourth and fifth sections, which together occupy only four pages,

contain respectively comments on such occurrences during the year as seem of special interest, and the observations received from the Faroes.

The paper ends with a map, showing the locations of about eighty Danish lights. — GERRIT S. MILLER, JR.

Lane's Field-Notes on the Birds of Chili.¹ — Students of South American birds should be grateful to Dr. Sclater for publishing the valuable series of notes constituting this paper. Mr. Lane was sent to Chili by the late Mr. H. B. James to gather material which, in connection with his own observations, was to be used in a proposed work on Chilean birds.² Lane was in the field from November, 1889, to December, 1890, during which time he made collections and observations near Santiago, in the Province of Tarapacá, in northern Chili, and in the Provinces of Arauco and Valdivia and the Island of Chiloe in southern Chili. The notes here given by Dr. Sclater from Lane's journals relate to 124 species and are of exceptional interest. They were evidently written by a keen, appreciative observer, and he gives us well-drawn character sketches of birds concerning whose life histories we previously had very little reliable information. Often a page or more is devoted to a description of the habits and haunts of a single species and there are particularly satisfactory accounts of such representative Chilean species as members of the genera *Phytotoma*, *Pteroptochus*, *Hylactes*, *Thinocornus*, *Nothoprocta* and others. — F. M. C.

Richmond on Madagascan Birds.³ — As a result of a few months' collecting (February to July, 1895) in Madagascar, mainly on the east coast, Dr. Abbott has forwarded to the U. S. National Museum 217 specimens of birds. These are referred by Dr. Richmond to 83 species, one of which, *Egialitis thoracica*, he has before described,⁴ while two others, *Thalassornis insularis* and *Copsychus inexpectatus*, are here for the first time described as new. — F. M. C.

An Ohio Grackle Roost.⁵ — This paper contains the results of one season's work, from the arrival of the Grackles on March 9 to their

¹ Field-notes on the Birds of Chili. By Ambrose A. Lane. With an Introduction and Remarks by P. L. Sclater. The Ibis, January, 1897, pp. 8-51; April, pp. 177-195; July, pp. 297-317. Figg. 5.

² Cf. Auk, X, 1893, p. 354.

³ Catalogue of a Collection of Birds made by Doctor W. L. Abbott in Madagascar, with Descriptions of three new species. Proc. U. S. Nat. Mus., XIX, pp. 677-694. Received May 19, 1897.

⁴ Proc. Biol. Soc. Wash., X, 1896, p. 53.

⁵ The Oberlin Summer Grackle Roost. By Lynds Jones. = Bulletin No. 15, Wilson Ornithological Chapter of the Agassiz Association. Oberlin, Ohio, July 30, 1897. 12mo. pp. 37-56, 2 maps, 1 cut in text.

departure on October 31. During this time the study of these birds was the observer's chief object; his record of their movements sometimes began at 3 A. M. and continued until the birds had left the roost, and in the evening he was again at his post to note their return. We have, therefore, a detailed history of the lives of these birds during their presence on their breeding grounds, by an ornithologist whose enthusiasm permitted no relaxation in the care with which his observations were made, and whose experience fitted him to direct his efforts most effectively. His study shows that "during courtship and nesting, each occupying about two weeks under normal conditions, none of the Grackles flock together to pass the night, whatever they may have done previously; but as soon as incubation has well begun the old males seek the shelter of some convenient grove and pass the night there with others of their kind. As soon as the most forward young are able to fly, they are escorted to the common roost by the old male, or if the whole brood should develop at the same time, by both parents; and where there is any marked difference in the development of the young of the same brood, the later ones, accompanied by the old female, bring up the rear. The young are fed for some days after they begin to roost with the old ones. . . . In general, the birds depart from the roost with the rising sun, and return to it at sunset. Singing and calling begin with the break of day, and continue until the birds depart for their feeding grounds. At night there is comparatively little singing, and all noise and shifting about cease as darkness falls. Early in the season the birds arrive and depart independently of each other, but with the advancing summer flocking increases, until finally all move as one individual." The paper is to be commended for its clear presentation of an admirable piece of field work. — F. M. C.

Cory's Shore Birds of North America.¹—This work is constructed on the same lines as the author's 'How to know the Ducks, Geese and Swans,' and his 'Key to the Water Birds of Florida,' published originally in his 'Hunting and Fishing in Florida' (reviewed in this Journal, XIII, 1896, pp. 246, 247). It is intended, the author says, "to meet the wants of a large number of persons, especially sportsmen, who are interested in birds and would like to know their names, but often find it no easy task to identify them by the 'bird books.' To all such I offer this Key, in which the species are arranged in groups according to size," etc. The work consists of a few introductory pages, describing how to measure birds, a glossary of technical terms, and an 'Index to the Key,' followed

¹ How to know | the Shore Birds | (Limicolæ) | of North America | (south of Greenland and Alaska | all the species being grouped according to size and color | — | By Charles B. Cory | . . . [= 9 lines, titles and list of the author's principal publications] | — | For sale by | Little, Brown & Co. | Boston | 1897 — Small 4to, pp. 89, with numerous illustrations.

by the 'Key to the Species' (pp. 13-29), and then by formal descriptions, in systematic sequence, of the North American species of Limicolæ. Both the 'Key' and the body of the work are profusely illustrated with half-tone and line cuts of heads, feet, tail-markings, etc., with some full-length figures, which, with the key and the descriptive text, must serve to make identification a simple matter. Besides the technical descriptions, a brief account is given of the distribution and life history of each species. — J. A. A.

Chapman's 'Handbook,' 4th Edition.¹ — The increasing demand for ornithological text-books is shown by the fact that the publishers of this work have issued a fourth edition of this work within two years of its publication. The present edition differs from the preceding ones through some slight alterations in the text and in the addition of an 'Appendix,' giving a list of the numerous changes in nomenclature, etc., which have occurred since the appearance of the first edition. — J. A. A.

Hartert on the Podargidæ, Caprimulgidæ and Macropterygidæ. — The first part of the division of 'Das Tierreich' devoted to Aves is by Mr. Hartert, and includes the three families Podargidæ, Caprimulgidæ and Macropterygidæ, or the Goatsuckers and Swifts.² For this work Mr. Hartert is especially fitted, being the monographer, five years ago, of these same groups for the British Museum 'Catalogue of Birds.'³ The considerable number of species described since the appearance of the 'Catalogue,' are here duly interpolated, but there are comparatively few changes in nomenclature. *Nanochordeiles* is a new generic division for *Chordeiles pusillus* Gould, while *Cosmetornis* is suppressed. The family name Cypselidæ gives place to Macropterygidæ, and we have *Apus* in place of *Micropus*, and Apodinæ in place of Cypselinæ, — these changes being adopted from Dr. A. Reichenow, but they are apparently not tenable.⁴

The text consists of brief diagnoses of all the groups, from families to subspecies, with analytical tables, and the citation of the synonymy

¹ Handbook of Birds of Eastern North America. . . . By Frank M. Chapman. 12mo, pp. xiv + 431. Fourth Edition. New York. D. Appleton & Co. 1897. \$3.00.

² Podargidæ, Caprimulgidæ und Macropterygidæ bearbeitet von Ernst Hartert, Direktor des Zoologischen Museums in Tring (England). Mit 16 Abbildungen im Texte. Berlin: Verlag von R. Friedländer und Sohn. = Das Tierreich. Eine Zusammenstellung und Kennzeichnung der rezenten Tierformen. Herausgegeben von der Deutschen Zoologischen Gesellschaft. General Redakteur: Franz Eilhard Schulze. — 1. Lieferung. Aves. Redakteur: A. Reichenow. — 8vo, pp. viii + 98. (Subscription price, 4.50 marks.)

³ Cf. Auk, X, 1893, pp. 67, 68.

⁴ Cf. Stejneger, Science, N. S., V, No. 126, p. 847, May 28, 1897.

and most important references. The work is thus condensed, yet sufficiently comprehensive to meet the needs of the specialist and general student, for whom the work is particularly designed. If the succeeding bird parts conform to the present standard it will be of the utmost service, and deserve the wide support we heartily wish it. — J. A. A.

Mearns on the 'Ornithological Vocabulary of the Moki Indians.'¹ — In this paper the Moki names are given for most of the birds found in the Moki country in Arizona, some two hundred or more in number. The list was prepared with the aid of Dr. Mearns's "venerable friend Ongwischey (Raven)," an intelligent Indian who took interest in the work. A brief account of the Moki people and their country precedes the vocabulary of bird names. In addition to the names there are annotations here and there of much ornithological interest, but the paper is mainly of value to the anthropologist. — J. A. A.

Papers on Economic Ornithology. — Mr. Sylvester D. Judd's paper entitled 'Methods in Economic Ornithology, with special reference to the Catbird'² is of special interest, aside from its bearing on Economic Ornithology, from the fact that insects supposed to be distasteful to birds on account of their nauseous odors or more or less acrid secretions, do not in fact prove to be so, and are thus not secure from the attacks of birds by these supposed 'protective' qualities, as so many writers on 'protective mimicry' have assumed. Thus Mr. Judd has found that 9 out of 13 Catbirds taken in a little gully near Washington, on July 30, 1895, where ripe elderberries and blackberries were abundant, had partaken liberally "of the destructive locust beetle, 18 of these orange and black pests having been taken from one bird. This is surprising, because beetles of this family (Chrysomellidæ) secrete a substance which is supposed to be distasteful to birds. . . . In the insect food of these birds there were no ants or grasshoppers, but, on the other hand, the supposedly distasteful locust leaf mining beetles." Again, in his experiments with live birds kept in a cage for the purpose of studying their food preferences, Mr. Judd found that "Stink bugs (Pentatomidæ), whose nauseating odor is familiar to every one who has been berrying, were eaten by the Catbirds, even when they had been well fed with other food." He says further: "Bad smelling beetles (Carabidæ), which have been supposed to develop their stench to protect them from birds, were snatched as soon as they were put on the cork" (a floating cork island in a large bowl of water, used to prevent the insects escaping). That this preference was not due to confinement or unnatural conditions is shown by the fact that "Beetles formed, in the 200 [wild] Catbird stomachs examined, the most important part of the

¹ Amer. Anthropologist, Dec., 1896, pp. 391-403.

² American Naturalist, May, 1897, pp. 392-397.

animal food, and among these beetles strong scented *Carabidæ* were found oftener than any others." Here is certainly 'food for reflection!'

Mr. Judd, in this excellent paper, not only treats of the food of the Catbird, but gives an exposition of the methods employed in his investigations, where observations on the habits of the wild birds in the field are supplemented by experimentation with captive birds as to their food preferences, and by stomach examinations to ascertain what wild birds have actually eaten. The results of Mr. Judd's investigations are highly favorable to the much maligned Catbird. While it has a partiality for fruits, experiment shows that it prefers mulberries to strawberries and cherries, and that these latter were never touched when mulberries were at hand. Also that the Catbird prefers red mulberries to white mulberries. It is further inferred that cherries and strawberries can be protected from the depredations of the Catbird by planting mulberries.

Mr. F. E. L. Beal writes of 'The Blue Jay and its Food,'¹ and states that "the examination of nearly 300 stomachs shows that the Blue Jay certainly does far more good than harm." It destroys "some grasshoppers and caterpillars and many noxious beetles," and "gathers its fruits from nature's orchard and vineyard, not from man's; corn is the only vegetable food for which the farmer suffers any loss, and here the damage is small." Mr. Beal's examinations of the Blue Jay's stomachs leads him to an optimistic view of his nest-robbing proclivities, which do not sustain "the accusations of eating eggs and young birds." The charges have no doubt been exaggerated, for no reasonable observer would assert that "eggs and young birds constitute the chief food of the Blue Jay during the breeding season." It is not perhaps strange that only a few of the birds examined were taken 'red-handed.'

Mr. Beal is also author of 'Some Common Birds in Their Relation to Agriculture,' issued by the U. S. Department of Agriculture as 'Farmer's Bulletin No. 54 (pp. 40, May, 1897), which "contains brief abstracts of the results of food studies of about thirty grain and insect-eating birds, belonging to 10 different families." These are the Cuckoos, Woodpeckers, Kingbird, Phoebe, Blue Jay, Crow, Bobolink, Red-winged Blackbird, Meadowlark, Baltimore Oriole, Crow Blackbird, Sparrows, Rose-breasted Grosbeak, Swallows, Cedarbird, Catbird, Brown Thrasher, House Wren, Robin, and Bluebird. Many of these abstracts are based on reports previously published by the United States Department of Agriculture in special 'Bulletins' or in its 'Yearbooks,' but others appear to be advance statements of results reached in investigations, the details of which have not yet been published. About a page of text is given to each species, which suffices for a clear summary of its status in relation to agriculture, based on scientific investigation of its food habits under the direction of the chief of the Biological Survey of the U. S. Department of Agriculture,

¹ Yearbook of the U. S. Department of Agriculture for 1896 (1897), pp. 197-206.

by his corps of assistants. Full-length text-figures illustrate 22 of the species treated. This opportune compilation cannot be too widely distributed, as it carries convincing evidence of the great economic importance of bird life to agriculture.

Another important and instructive paper recently issued under the same auspices is Dr. T. S. Palmer's 'Extermination of Noxious Animals by Bounties.'¹ Reference is made to both mammals and birds, and the conclusion is reached that this method of attempting the extermination of noxious animals is both expensive and futile. The objections to the system are (1) that the expense is out of all proportion to the benefit gained; (2) the impossibility of maintaining bounties in all parts of an animal's range; (3) the impossibility of maintaining equal rates in all States; and (4) the impossibility of preventing fraud, as the payment of bounties on animals imported from outside areas, or especially raised for the purpose, or for 'counterfeit scalps,' innocent species being palmed off on the ignorant official for injurious ones. This is especially liable to occur in the case of birds, and notably where bounties are offered for the House Sparrow. The statistics here given show that during the last twenty-five years not less than 3,000,000 of dollars have been expended for bounties within the United States, with the result that not a single species has thereby been exterminated, and, in most cases, with little benefit. As the custom of offering bounties is, however, apparently on the increase, this timely exhibit of how the scheme works ought to be of advantage as regards the future. The matter of holding the really noxious species in check by other methods is also intelligently discussed. — J. A. A.

Whitlock's Review of Herr Gätke's Views on the Migration of Birds.² — In this extended critique of Herr Gätke's 'Heligoland,' the writer disclaims "any feelings towards Herr Gätke but those of the warmest admiration and respect." He says he "looked forward to the appearance of Herr Gätke's long-expected work with the greatest interest. On its first perusal, the novelty of the author's statements greatly impressed me, and after careful study I found them very difficult of acceptance." He then, he says, formed the plan of writing a paper on it for one of the current ornithological journals, but he soon found the subject too great to render this practicable, and hence this separate form of publication. His "sole aim has been to place the other side of the question" before his readers. Of Herr Gätke's work he says: "The opinions he expresses, on the

¹ Yearbook of the U. S. Department of Agriculture for 1896 (1897), pp. 55-68.

² The Migration of Birds | A Consideration of Herr Gätke's Views | By | F. B. Whitlock | Author of "Birds of Derbyshire," etc., etc. | (All rights reserved) | London | R. H. Porter | 7, Princes Street, Cavendish Square, W. | 1897.—8vo, pp. vi + 140. (Price, 3s. 6d. net.)

special department of ornithological science, for the study of which Heligoland is so pre-eminently adapted, will naturally have the greatest weight with all, and some in their admiration for the veteran observer have formed the opinion, that all, or nearly all of our *previous* conceptions, as to the direction, altitude and velocity of the migratory flight, will have to be greatly modified or altogether abandoned in favour of those he sets before us."

After a few pages of introductory remarks, Mr. Whitlock takes that part of Herr Gätke's 'Heligoland' treating of the 'Migration of Birds' (pp. 3-148, English ed.), to which he chiefly confines his remarks, systematically taking up the various points that are especially Gätkean. Space will not permit us to follow Mr. Whitlock's critical analysis of Herr Gätke's many extraordinary statements regarding plain matters of fact, to say nothing of his astonishing inferences and assumptions. As to the former, our author says, with an evident feeling of kindness: "It will be readily admitted that to arrive at an accurate result in calculating the numbers of rapidly moving objects is very difficult. It is equally difficult to arrive at a proper estimate of the value we are to place on the author's computations. In particular instances the reader can hardly fail to be struck by evidence of the grossest, though no doubt unintentional, exaggeration. This must perhaps be attributed to the artistic element in Herr Gätke's nature." (p. 11.)

Mr. Whitlock combats at length Gätke's theory of a general east and west migration, and migration by a 'broad front' as against fly lines, bringing much evidence against it from even Gätke's own statements. After an extended discussion of the subject he says (p. 39): "It is difficult to see on what grounds Herr Gätke has based his theory that the general course of migration tends from east to west."

The absurdity of many of Gätke's theories and assumptions is mercilessly exposed by Mr. Whitlock's simply bringing to bear upon them a little common sense and well-known physical laws, especially on the supposed 'altitude' and 'velocity' of migration flight and the assumed influence thereon of certain meteorological conditions.

In regard to Gätke's objections to current views on the "cause of the migratory movement," and on "what guides birds during their migrations," Mr. Whitlock says of the former (p. 114): "It has been previously pointed out that so far from enunciating any theory of his own . . . Herr Gätke frankly avows himself disinclined to undertake the task. The chapter in his work he devotes to the question is, therefore, nothing but a statement of his objections to the theories of others. . . . It is, perhaps, not to be wondered that he should feel disinclined to put forth any theory of his own, committed as he already is to the statements on the direction, altitude and velocity of migration flight as detailed in previous pages. No theory that could be devised would be likely, in all its details, to fit in with such various speculations, and he may well look upon the task as hopeless." Later on (p. 120) Herr Gätke's theories of

migration flight of a flock of birds from their breeding grounds in the northeast to their winter quarters in the southwest of Europe is thus acutely summarized: "Let us suppose that we are dealing with one of the 'many hundreds' which pass Heligoland on their journeys from 'far eastern Asia.' It is dusk—and the time for departure has arrived. Without more flocking together than has accidentally taken place during feeding time, all the residents in a particular area set out from their breeding grounds on a journey of two thousand miles or more. No food has been taken for some hours, and the winds being unfavourable near the surface of the earth, all rise to a height of at least 20,000 feet, whence guided by some unknown power, and at a speed of 150 to 200 miles an hour, they set out on their rushing and undeviating flight to the west of Europe. Here, however, the direction of the latter must be altered and a turn to the south executed in mid-air, which carries them, after a further flight, to the neighborhood of Heligoland, where again a second turn is accomplished and the remainder of the journey is performed in the old undeviating westerly direction, until dawn finds them at their goal on the shores of England; neither tired nor hungry after their great exertions." This is a fair statement of Herr Gätke's theories on this subject, and needs no comment to render their absurdity apparent to any thoughtful ornithologist.

"In estimating the value of his [Herr Gätke's] theories," says Mr. Whitlock (p. vi), "it must not be forgotten that they are based on observations conducted in a very limited and somewhat exceptionally situated area; outside this area his personal experience seems to have been very small." (Cf. Auk, XIII, 1896, p. 138, 139). Add to this his lack of scientific training, his evident but doubtless unconscious tendency to exaggeration, and an imaginative turn of mind, and we need not seek further for an explanation of the overdrawn statements and ridiculous speculations found in 'Heligoland.'

Mr. Whitlock has done good service to ornithology in publishing his, on the whole, temperate, and well-considered critique of a work that is both a valuable and an unfortunate contribution to ornithology, as the exaggerations and wild speculations it contains are the parts seized upon with greatest avidity by the thoughtless compiler for introduction broadcast into the popular literature of ornithology. It need hardly be said, in conclusion, that Mr. Whitlock's book will not prove very agreeable reading matter to the many who have idealized and idolized the author of 'Heligoland.'—J. A. A.

Suchetet on Hybrids among Wild Birds.¹—In a thick octavo volume of 1154 pages Mr. Suchetet has brought together all the facts he has been

¹ Des | Hybrides | à | l'état sauvage | — | Règne Animal | — | Tome Premier | Classe des Oiseaux | Par | André Suchetet. | . . . [Motto] | — | Paris | Libraire J.-B. Baillière et Fils | 17, Rue Hautefeuille, 19 | 1897 — Large 8vo, pp. clii + 1002. (Price, 28 fr.)

able to gather respecting hybridity among birds in a state of nature. These cases number 271, of which, however, some are doubtful. Of these 189 are crosses between species, and 82 between 'races' or 'varieties.' The total number of species involved is 166, and of varieties, 49. The evidence in each case is fully presented and its merits duly weighed. This work has occupied the author for ten years, and the amount of labor involved is certainly immense. The list of works and papers cited exceeds 1100, and the list of persons with whom the author has corresponded includes the names of nearly 500 more or less well-known naturalists, to whom reference is made in the course of the work. He further gives a list of 85 museums and collections with which he has been in communication, which contain hybrids or reputed hybrids, with an indication of the character of each specimen. These number 236, of which 52 are Passerine, 1 Ralline, 2 Columbine, 75 Anatine, and 106 Galline.

The work is divided into five parts, which have appeared at intervals from 1890 to the present time. Thus Part I, Gallinacés et Colombes (pp. 3-107), was issued in 1890; Part II, Palmipèdes et Echassiers (pp. 109-177), in 1891; Part III, Passereaux (pp. 179-451), in 1892¹; Part IV, Accipitres et Perroquets (pp. 453-472), in 1893; Part V, Additions, Corrections et Examens d'après nature, pp. 473-873, in 1895. Part VI, Nouvelles Additions (pp. 907-990), as well the alphabetic list of authors cited (pp. 875-905), with the Introduction (pp. iii-clii) and contents are now added. The introduction gives an historical account of the subject, with a summary of the views of naturalists, ancient and modern, and discusses at length the value of fertility or infertility in hybrids as a test of specific identity.

As said in our review of Part III, the work has involved a vast amount of laborious research, and gives apparently an excellent summary of the literature of the subject. It therefore affords a mine of information for those who wish to pursue the subject of hybridity among birds.

The present volume is to be followed by a second on hybridity among insects and in fishes. The author also proposes to publish an annual supplement to the volume on birds, giving the new facts as they appear, and solicits aid in the work from other observers. He also has given notice that as soon as he receives enough subscriptions to warrant the undertaking he will begin the publication of life-size colored illustrations of about 200 of the hybrids he has made the subject of study. — J. A. A.

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CORRESPONDENCE.

The Treatment of 'Nomina Nuda.'

EDITORS OF 'THE AUK':—

Dear Sirs:—I should like to ask, through the pages of 'The Auk,' for further expressions of opinion concerning the diverse treatment to which *nomina nuda* are now subjected. The matter is one of such importance to those who deal hand-to-hand with the many-sided aspects of nomenclature that every effort should be made to bring order out of the present chaos.

A *nomen nudum* is a name—zoölogical or botanical, generic, subgeneric, specific or subspecific—which has not been defined and published in accordance with the laws of binomial nomenclature. Such names are generally recognized as without status, and therefore as in no way invalidating the subsequent application of the same term to another organism, or to the organism intended by the original writer when this, as is often the case, can be ascertained. It naturally follows that a *nomen nudum*, having no real status in nomenclature, may be disregarded; and if a subsequent author, wittingly or unwittingly, uses the same name again the

responsibility rests with him. With published nomina nuda such is the nearly uniform practice, from which there is little if any departure. If, on the contrary, a nomen nudum has never been published, if it exists only on a collector's field label, if it has never seen the light except through the alcohol of a museum jar, if it lies buried in some posthumous or half forgotten manuscript, if it has been suggested verbally only, and an author adopts it and defines it, and publishes it, then individual opinion begins to run riot. Instead of agreeing that an unpublished nomen nudum should be treated exactly like a published one, many writers consider that it has special prerogatives, and that its existence, to a certain degree at least, precludes the free subsequent use of the term. In other words, the writer who adopts a manuscript name is not universally conceded to be authority for the printed nomenclatural unit, although he alone is responsible for its publication, and in nine cases out of ten the paper in which it is printed will appear in indexes and bibliographies under his name only.¹ To some writers it seems proper that the responsibility for a manuscript name when published should be equally shared by the publisher and the writer of the label, arranger of museum specimens, or writer of the laid aside manuscript. Others, and among them the majority of botanists, ignore the publisher. Comparatively few show their regard for consistency by a uniform treatment of all nomina nuda, whether published or not.

This confusing lack of uniformity probably arises from two principal causes,—first, that the writers of manuscript names are often our personal friends, while the publishers of nomina nuda are most of them dead, and second, that it is difficult to keep clearly and constantly in mind that *nomenclature deals not with history, not with botany, not with zoölogy, but with names*, and that therefore the authority for a name has nothing whatever to do with the authority for a species. With regard to the first of these disturbing causes, if such it really be, nothing need be said. The second, however, which is undoubtedly by far the more potent, demands careful consideration, as it strikes at the root of the whole question of the citation of authority.

Unless we admit, as I fear few of us are honest enough to do, that the principal object in writing the name of an author after a nomenclatural compound is to tickle worldly vanity, we must, to defend this custom, show that it is of some advantage to systematic zoölogy or botany as a whole,

¹ A peculiarly apt example is furnished by a recent paper in the 'Proceedings' of the U. S. National Museum (Vol. XIX No. 1115). Here twenty-two new fish are described, "each in the name of the person responsible for the determination and description." Among this small number of species no less than eleven authorities are quoted in addition to the one which appears at the head of the article (this stands for only three!), and which — so I am informed by a member of the Publication Committee — will alone, according to current usage, be found in the index to the volume.

that is, that it is in some way an aid to those who have to deal with the enormously complicated and ever growing mass of binomial nomenclature. Such an aid the citation of authority undoubtedly is, but under one condition only — when it furnishes a clue to that cardinal event in the history of the name to which it is attached, its first published introduction to the scientific world. When the name of the authority cited fails to give this clue it is not only a useless encumbrance to memory, but also an actual addition to the inconveniences of our system of nomenclature. And this is the inevitable result of quoting the name of the writer of the *nomen nudum* instead of the publisher. To take a case in point: A few years ago Dr. J. A. Allen published a revision of a certain group of American chipmunks. Among the forms which he then for the first time described was one that Mr. C. H. Townsend had collected in Lower California and immediately recognized as new. On the labels of the specimens Mr. Townsend had written the specific name *obscurus*. This Dr. Allen adopted, and gave for authority 'Townsend MS.,' though the description and publication on which the name rests were wholly by himself. Suppose now that in a subsequent paper the name is mentioned as '*Tamias obscurus* Townsend,' a person not familiar with the trivial, so to speak, prenatal incidents of nomenclatural history — and no specialist can keep them all in mind — will waste time and patience in searching through Mr. Townsend's bibliography for a paper in which a chipmunk might have received a new name. When, after abandoning the false clue furnished by the citation he proceeds as he would have done in the first place had no authority been mentioned, and at length finds the original description in a paper by Dr. Allen, he may or may not feel repaid for his trouble by the discovery of the vaguely conveyed information that Mr. Townsend knew something about the animal before Dr. Allen named it. The citation '*Tamias obscurus* Allen,' on the other hand, leads unequivocally to the series of papers in which the name first appeared, and therefore very materially assists in tracing out its history.

While the tendency to quote the writer of a manuscript name as authority for the published term probably originated from the prevalent confusion of the authority for a name with the authority for a species or group, in reality no two things could be more unrelated than these, and as already stated it is with the first *and the first only* that nomenclature has to deal. A moment's reflection will show the truth of this assertion. No one regards Linnæus, for instance, as authority for the specific discrimination of the many American birds whose systematic names are followed by the abbreviation 'Linn.' He simply took the species described under polynomial names by other authors and applied to them binomial designations. Similarly when a species is originally described under an untenable binomial, and the mistake is corrected by a subsequent author, the latter alone stands as authority for the name, although he did not discover the species or introduce it to zoölogy or botany. A well known instance is furnished by the name *Calamospiza melanocorys* Stejneger. The bird

which bears this name was discovered by J. K. Townsend, who named it *Fringilla bicolor*, unaware that Linnæus had previously applied the same name to another species. The mistake was detected many years later by Stejneger, who substituted for the untenable name *bicolor* the tenable name *melanocorys*. There are here three separate entities: (a) a large, black-and-white finch for whose discovery and description Townsend is responsible, (b) a specific name *bicolor* applied to this bird by Townsend, and (c) a specific name *melanocorys* applied to the same bird by Stejneger. The finch belongs to the realm of zoölogy, its discovery and first description to that of history, while the two names are the concern of nomenclature. As the earlier of these is untenable it is rejected in favor of the later, for which Stejneger alone is authority, regardless of the fact that he had nothing whatever to do with the discovery and description of that particular black-and-white finch to which he applied the name *melanocorys*. I have gone into considerable detail with this example, because, remarkably enough, it seems necessary to force home the truth that nomenclature is like a good shoemaker who sticks close to his last and busies himself with matters historical, botanical, and zoölogical so far only as they aid him in understanding and manipulating the materials of his calling.

If therefore the name of the discoverer of a species is of so little moment when he himself has published his discovery, why should it acquire importance when he has published nothing?

As I have attempted to show, the citation of the writer of a manuscript name, when he is not also the publisher, accomplishes no purpose in harmony with the aims of nomenclature. The double citation of writer and publisher together introduces an irrelevant element, and where the burden to memory is already so great, any addition without compensating gain is to be avoided. Finally the single citation of the publisher alone fulfils an important end.

Very truly yours,

GERRIT S. MILLER, JR.

U. S. Department of Agriculture, Washington, D. C.

NOTES AND NEWS.

THE FIFTEENTH ANNUAL CONGRESS of the American Ornithologists' Union will be held at the American Museum of Natural History in New York city, beginning on the evening of Monday, November 8, 1897, when will be held the session for the election of officers and members and the transaction of routine business. The following three days will be given to public sessions for the reading and discussion of scientific papers. Members intending to present papers are requested to send the titles of the same to the Secretary, Mr. John H. Sage, Portland, Conn., in time to reach him prior to November 5, in order to facilitate the preparation of the program of papers to be read before the Congress.

MR. LOUIS W. BROKAW, an Associate Member of the American Ornithologist's Union, died at his home at Carmel, Ind., Sept. 3, 1897, after a brief illness.

SIR EDWARD NEWTON, a younger brother of Professor Alfred Newton, died at Lowestoft, England, April 25, 1897, in his 65th year, having been born in November, 1832. He was one of the founders and original members of the British Ornithologists' Union, and "one of the eight who formulated the idea of the Union and of 'The Ibis,'" and was one of the original twenty members to which the British Ornithologists' Union was for a time strictly limited. In 1859 he published in 'The Ibis,' in conjunction with his brother Alfred, an important paper on the birds of St. Croix, West Indies. Later (1862-69) he published various papers and reports on the birds of Madagascar and the Mascarene Islands, including descriptions of many new species, discovered during his official residence at Mauritius as Colonial Secretary. Although harassed and overburdened with official duties while Lieut.-Governor and Colonial Secretary of Jamaica (1877-1883), he found time to form a nearly complete collection of the birds of the island, his observations and collection forming the basis of his well-known 'List of the Birds of Jamaica,' published in the 'Handbook of Jamaica,' issued in 1881. His researches concerning the extinct bird fauna of the Mascarenes will ever give his name a prominent place in the history of that subject.

A UNIQUE and exceedingly appropriate memorial to the late Henry Davis Minot consists of a park of some fifty acres in extent, recently transferred by his four brothers, William, Charles S., Robert, and Lawrence Minot, in accordance with the wishes of their father, the late William Minot, to the trustees of public reservations in Massachusetts, to be maintained as a wild park, "for the use of the public forever." This park, to be known as Mount Anne Park, consists of a tract of about fifty acres of beautiful woodland near the village of West Gloucester, Mass. It

includes Mount Anne, or Thompson's Mountain, the highest point on the North Shore, some 225 feet above the sea, — a pine-clad, granite summit in the midst of a forest wilderness. The park is otherwise charmingly diversified, being a spot of exceptional natural beauty.

WE WOULD call especial attention to the efforts of the Audubon Monument Association of New Orleans to raise funds for the erection of a Monument to the famous ornithologist John James Audubon, in Audubon Park, that city. To this end the Association offers for sale a well written and tastefully bound volume of some eighty pages containing a sketch of Audubon's life by Mrs. Mary Fluker Bradford of New Orleans.

This work can be obtained of the Audubon Monument Association of New Orleans for the price of one dollar. It is not only worth this sum but every purchaser will have the satisfaction of helping a good cause.

HOUGHTON, MIFFLIN AND COMPANY announce among their Autumn publications 'Birds of Village and Field,' by Florence A. Merriam. The book is intended for beginners and, we are told, "is planned primarily to meet the needs of persons who are interested in birds but who know very little about them, — to aid them, without a gun, to know and name the common birds around them." The work will have nearly 300 illustrations.

RESPECTING the collection of birds' eggs in the British Museum, we take the following from 'The Ibis,' for July, 1897: "The great collection of birds'-eggs in the British Museum, which was arranged under the direction of Seebohm shortly before his death, contains about 48,000 specimens, and is, no doubt, by far the most extensive collection of these objects in existence. It is contained in 35 cabinets, with about 24 drawers in each cabinet, and follows the systematic order of the Bird Catalogue. In it are comprised, besides the old collection, the large collections of Gould, Hume, Salvin and Godman, and Seebohm. It is thus rich in Indian, Palæarctic, Australian, and Central American eggs, but comparatively poor in South American and African forms. A Handbook of General Oology, based upon this splendid series, would be a most valuable work, and will, we trust, shortly be undertaken. Nothing of the sort has been published since the appearance of Des Murs's 'Traité Général d'Oologie Ornithologique,' in 1860."

From the same authority we learn that the Gätke Collection of birds and eggs, and the library belonging therewith, has become the property of the Prussian State, and placed under the control of the Royal Biological Institution in Heligoland; it will soon be removed to the new Heligoland Museum and be made accessible to the public.

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ERRATA.

Page 317, line 3, for Chas. U. Holden read Chas. N. Holden.

" " " 6, " Altie read Attie.

" 324 " 37, " Mr. Otto Herman Behr read Messrs. Otto and
Herman Behr. .

Page 326 line 6, for WITMER STONE read H. W. FOWLER.

For additional Errata see *antea*, p. 258.

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JONES, LYNDY, College Museum, Oberlin, Ohio.....	1888
JONES, Prof. MARCUS E., Salt Lake City, Utah.....	1890
JORDAN, A. H. B., Johnsonburg, Pa.....	1888
JORDAN, Prof. DAVID STARR, Stanford University, Cal.....	1885
JUDD, ELMER T., Cando, No. Dak.....	1895
JUDD, SYLVESTER D., Dept. of Agriculture, Washington, D. C.....	1893
JUSTICE, WILLIAM W., Jr., Germantown, Philadelphia, Pa.....	1895
KELKER, WILLIAM A., Harrisburg, Pa.....	1896
KELLOGG, VERNON L., Stanford University, Cal.....	1888
KENDALL, Dr. W. C., U. S. Fish Commission, Washington, D. C.....	1886
KENNARD, FREDERIC HEDGE, Brookline, Mass.....	1892
KEYSER, Rev. LEANDER S., Dayton, Ohio.....	1891
KIMBALL, R. E., 631 G St., N. W., Washington, D. C.....	1892
KING, GEORGE GORDON, Newport, R. I.....	1888
KIRKPATRICK, HARRY C., Meadville, Pa.....	1891
KIRKWOOD, FRANK C., P. O. Box 364, Baltimore, Md.....	1892
KNIGHT, ORA WILLIS, Bangor, Me.....	1893
KNOWLTON, F. H., U. S. Nat. Mus., Washington, D. C.....	1883
KOCH, Prof. AUGUST, Williamsport, Pa.....	1891
KOCH, FREDERIC W., Univ. Cal., Berkeley, Cal.....	1891
KOHN, GUSTAVE, 14 Carondelet St., New Orleans, La.....	1886
KOUMLY, Rev. PIRMIN M., St. Benedict's College, Atchison, Kansas.....	1892
KRAEMER, FREDERICK L., Box 198, Williamsport, Pa.....	1893
KROM, STEPHEN ARTHUR, Plainfield, N. J.....	1894
KUMLIEN, LUDWIG, Milton, Wis.....	1895
LADD, SAMUEL B., West Chester, Pa.....	1889

LAHEE, EUGENE H., Alton, Ill.....	1893
LANO, ALBERT, Aitkin, Minn.....	1890
LANTZ, Prof. D. E., State Agl. College, Manhattan, Kansas.....	1885
LAWRENCE, HIRAM V., 203 Bedford Ave., Brooklyn, N. Y.....	1895
LAWRENCE, ROBERT B., Flushing, N. Y.....	1883
LAWRENCE, ROBERT HOE, 45 William St., New York City.....	1890
LEMMON, WILLIAM P., Englewood, N. J.....	1896
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LEWIS, WILLIAM H., Pawtucket, R. I.....	1890
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LORING, J. ALDEN, Dept. of Agriculture, Washington, D. C.....	1889
LOWE, WILLOUGHBY P., Goodpasture, Colo.....	1893
LUHRMAN, JOHN, Jr., 158 Pacific Ave., Jersey City, N. J.....	1893
LUSK, RICHARD D., Tucson, Ariz.....	1894
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MACKAY, Dr. A. H., Halifax, Nova Scotia.....	1885
MACKAY, GEORGE H., Nantucket, Mass.....	1890
MACOUN, Prof. JOHN, Geol. and Nat. Hist. Surv., Ottawa, Ontario.....	1883
MAGUIRE, Dr. J. R., Lewistown, Ill.....	1896
MAILLIARD, JOHN W., 323 California St., San Francisco, Cal.....	1895
MAILLIARD, JOSEPH, San Geronimo, Cal.....	1895
MAITLAND, ROBERT L., 10 E. 35th St., New York City.....	1889
MALI, CHARLES M., 93 Willow St., Brooklyn, N. Y.....	1889
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MARSH, DANIEL J., Springfield, Mass.....	1894
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MAY, FRANK DWIGHT, Jr., 17 Huntington St., Hartford, Conn.....	1894
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MERRIA, Miss FLORENCE A., 1919 16th St., N. W., Washington, D. C.....	1885
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MILLS, R. WALTER, Webster Groves, Mo.....	1893
MITCHELL, WALTON I., 534 Summit Ave., St. Paul, Minn.....	1893
MOORE, J. PERCY, Univ. of Pa., Philadelphia, Pa.....	1886
MORCOM, G. FREAN, 330 So. Broadway, Los Angeles, Cal.....	1886
MORISON, GEORGE ABBOT, 34 Shepard St., Cambridge, Mass.....	1896
MORRIS, GEORGE SPENCER, Olney, Philadelphia, Pa.....	1887
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MORRISON, GEORGE A., Fox Lake, Wis.....	1891
MUMMERY, WALTER S., Flint, Mich.....	1895
MURDOCH, JOHN, Rock, Mass.....	1883
NACHTRIEB, Prof. HENRY F., Univ. of Minn., Minneapolis, Minn....	1892
NASH, H. W., Pueblo, Colorado.....	1892
NEAL, ALBERT EDWARD, 98 Exchange St., Portland, Me.....	1896
NEAL, HERBERT VINCENT, Brookline, Mass.....	1894
NICHOLS, EUGENE C., Flushing, N. Y.....	1895
NICHOLS, J. M., Peabody, Mass.....	1890
NORRIS, GUY BRUNAUGH, Garden City, Kansas.....	1894
NORRIS, Rev. JAMES AVERY, Hastings-on-Hudson, N. Y.....	1894
NORRIS, J. PARKER, 723 Walnut St., Philadelphia, Pa.....	1886
NORTON, ARTHUR H., Westbrook, Maine.....	1890
NORTON, ARTHUR HENRY WHITELEY, Hanover, N. H.....	1894
NORTON, RICHARD, Cambridge, Mass.....	1888
OBERHOLSER, HARRY C., Dept. of Agriculture, Washington, D. C....	1888
O'CONNOR, HALDEMAN, 25 No. Front St., Harrisburg, Pa.....	1896
O'NEIL, EDWARD, Sewickley, Allegheny Co., Pa.....	1893
ORTH, GEORGE S., 406 S. Hiland Ave., Pittsburgh, Pa.....	1892
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OSBORNE, JOHN LANG, Manchester, N. H.....	1894
OSBURN, Rev. WILLIAM, Nashville, Tenn.....	1890
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PALMER, Dr. THEODORE S., Dept. of Agriculture, Washington, D. C....	1888
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PAPE, CHARLES WESLEY, Manhattan, Kansas.....	1896
PARK, J. T., Jackson, Miss.....	1890
PARKER, J. GRAFTON, Jr., 100 Washington St., Chicago, Ill.....	1894
PAYNE, E. B., Catlin, Ill.....	1896
PEABODY, Rev. P. B., St. Vincent, Minn.....	1891
PEABODY, WILLIAM RODMAN, Cambridge, Mass.....	1890
PEACOCK, WILLIAM F., Chico, Butte Co., Cal.....	1888
PENNOCK, CHARLES J., Kennett Square, Chester Co., Pa.....	1888

PERKINS, CHARLES E., Hartford, Conn.....	1888
PETERSON, J. P., West Denmark, Polk Co., Wis.....	1885
PHELPS, WILLIAM HENRY, Cambridge, Mass.....	1895
PHILLIPS, A. H., Princeton, N. J.....	1891
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POMEROY, HARRY KIRKLAND, P. O. Box 575, Kalamazoo, Mich.....	1894
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PRENTISS, D. W., Jr., 1218 9th St., N. W., Washington, D. C.....	1890
PRICE, WILLIAM W., Stanford University, Cala.....	1893
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RAINE, WALTER, 181 Bleeker St., Toronto, Ontario.....	1889
RALPH, Dr. WILLIAM L., 26 Court St., Utica, N. Y.....	1888
RANN, Mrs. MARY L., Manchester, Iowa.....	1893
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RATHBUN, SAMUEL F., Seattle, Wash.....	1893
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RICHARDSON W. M., Am. Mus. Nat. Hist., New York City.....	1891
RICHMOND, CHARLES W., 705 9th St., N. W., Washington, D. C.....	1888
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ROBBINS, WILLIAM A., 178 Garfield Place, Brooklyn, N. Y.....	1888
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ROOSEVELT, FRANKLIN DELANO, Hyde Park, N. Y.....	1896
ROOSEVELT, Hon. THEODORE, Oyster Bay, Queens Co., N. Y.....	1888

ROTH, PAUL WAGNER, Greenville, Pa.....	1895
ROTZELL, Dr. W. E., Narberth, Pa.....	1893
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ROWLEY, JOHN, Jr., Am. Mus. Nat. Hist., New York City.....	1889
ROZYCKI, STEPHEN, Navy Dept., Washington, D. C.....	1894
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RUSSELL, WILLIAM BLACK, Fiskdale, Mass.....	1893
SAGE, HENRY M., Albany, N. Y.....	1885
SARGENT, HARRY B., 41 W. 82d St., New York City.....	1892
SAVAGE, DAVID LEWIS, Salem, Iowa.....	1894
SAVAGE, JAMES, 134 Abbott St., Buffalo, N. Y.....	1895
SCHALER, JOHN, Stamford, Conn.....	1893
SCHRAGE, E. B., Pontiac, Mich.....	1895
SCHURR, THEODORE A., Pittsfield, Mass.....	1888
SCHWAB, Rev. LAWRENCE H., 101 Lawrence St., New York City....	1892
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SHARPLESS, ROBERT P., Elgin, Ill.....	1894
SHATTUCK, GEORGE CHEEVER, 135 Marlboro St., Boston, Mass.....	1896
SHEARER, AMON R., Wallaceville, Chambers Co., Texas.....	1893
SHEPPARD, EDWIN, Acad. Nat. Sci., Philadelphia, Pa.....	1892
SHERRATT, W. J., 263 North 2d St., Philadelphia, Pa.....	1891
SHERRILL, W. E., Haskell, Texas.....	1896
SHIELDS, ALEXANDER M., Crocker Bldg., San Francisco, Cala.....	1899
SHOEMAKER, FRANK H., Hampton, Iowa.....	1895
SHORES, Dr. E. I., West Bridgewater, Mass.....	1883
SHORT, ERNEST H., Chilli, N. Y.....	1891
SHRYOCK, WILLIAM A., 823 N. Broad St., Philadelphia, Pa.....	1893
SILLOWAY, PERLEY MILTON, Rood House, Ill.....	1896
SIMPSON, R. B., Arches, West Va.....	1895
SKINNER, FRANCIS B., Rockville, Conn.....	1894
SLADE, JOHN A., 1134 Herkimer St., Brooklyn, N. Y.....	1888
SMALL, ALBERTO WILLIAM, Antrim, N. H.....	1895
SMALL, ERNEST WILLIAM, Monmouth, Me....	1895
SMITH, HORACE G., 2918 Lafayette St., Denver, Colo.....	1888
SMITH, Dr. HUGH M., 1248 New Jersey Ave., Washington, D. C.....	1886
SMITH, ROBERT WINDSOR, Kirkwood, Ga.....	1895
SMITH, THEODORE H., Orange, N. J.....	1896
SMITH, S. SIDNEY, 59 Wall St., New York City.....	1888
SMYTH, Prof. ELLISON A., Jr., Agr. and Mech. Coll., Blacksburg, Va.....	1892
SMYTH, HIRAM G., Locust Ave., Troy, N. Y.....	1896
SNYDER, WILL EDWIN, Beaver Dam, Wis.....	1895
SORNBORGER, JEWELL D., Cambridge, Mass.....	1888
SOUTHWICK, E. B., Arsenal Bldg., Central Park, New York City....	1888
SOUTHWICK, JAMES M., 27 Whitmarsh St., Providence, R. I.....	1896
SPAULDING, FRED. B., Lancaster, N. H.....	1894
SPELMAN, HENRY MUNSON, Cambridge, Mass.....	1883

SPRAGUE, JOHN C., 257 W. 74th St., New York City.....	1891
SPRATT, CHESMAN CHADWICK, Richmond, Maine.....	1894
STANTON, Prof. J. Y., Bates College, Lewiston, Me.....	1883
STEERE, JOSEPH H., Sault Ste. Marie, Mich.....	1894
STEPHENS, F., Witch Creek, San Diego Co., Cala.....	1883
STEPHENSON, Mrs. LOUISE MCGOWN, Helena, Ark.....	1894
STICKNEY, MYRON WILDER, 62 George St., Providence, R. I.....	1895
STOEY, W. W., Harrisburg, Pa.....	1891
STONE, CLARENCE FREEDOM, Branchport, N. Y.....	1894
STONE, DWIGHT D., Lansing, N. Y.....	1891
STONEBURN, FRED H., Newark, N. J.....	1893
STREATOR, CLARK P., Dept. of Agriculture, Washington, D. C.....	1889
STRECKER, JOHN KERN, Jr., Waco, Texas.....	1894
STRONG, REUBEN M., Oberlin, Ohio.....	1889
STUDER, JACOB HENRY, 114 Fifth Ave., New York City.....	1888
STURTEVANT, EDWARD, Inst. of Tech., Boston, Mass.....	1896
SUTTON, GEORGE BYRON, Newark Valley, N. Y.....	1896
SWINBURNE, JOHN, Guernsey, England.....	1887
TALLEY, Prof. THOMAS WASHINGTON, Tallahassee, Fla.....	1896
TATLOCK, JOHN, Jr., Mutual Life Ins. Co., New York City.....	1887
TAYLOR, ALEXANDER O'DRISCOLL, 124 Bellevue Ave., Newport, R. I.....	1888
TAYLOR, H. H., 63 Park Place, Bridgeport, Conn.....	1893
TEST, Dr. FREDERICK CLEVELAND, Lafayette, Ind.....	1892
THAYER, ABBOTT H., Scarborough, N. Y.....	1896
THOMAS, JOHN, Sharon, Pa.....	1895
THOMPSON, ERNEST E., Tappan, N. Y.....	1883
THOMSON, Prof. GEORGE S., Walden, Colo.....	1892
THORNE, Capt. PLATTE M., 22d Inf. U. S. A., 161 Troup St., Rochester, N. Y.....	1885
TODD, LOUIS M., Calais, Me.....	1887
TODD, W. E. CLYDE, Dept. of Agriculture, Washington, D. C.....	1890
TOPPAN, GEORGE L., 294 Newbury St., Boston, Mass.....	1886
TORREY, BRADFORD, Wellesley Hills, Mass.....	1883
TOWNSEND, CHARLES H., U. S. Fish Comm., Washington, D. C.....	1883
TOWNSEND, WILMOT, Bay Ridge, N. Y.....	1894
TREAT, WILLARD E., Silver Lane, Conn.....	1885
TREMBLAY, Dr. JOSEPH EUCLIDE, Esquimaux Point, Quebec, Can...	1895
TROMBLEY, JEROME, Petersburg, Mich.....	1885
TROTTER, Dr. SPENCER, Swarthmore College, Swarthmore, Pa.....	1888
TUTTLE, Dr. CARL, Berlin Heights, Ohio.....	1890
VAN CORTLANDT, Miss ANNE S., Croton-on-Hudson, N. Y.....	1885
VAN DENBURG, JOHN, Acad. Sci., San Francisco, Cala.....	1893
VAN SANT, Miss ELIZABETH, City Hall, Omaha, Neb.....	1896
VAN WINKLE, EDMUND, Vans Harbor, Mich.....	1894
VAUGHAN, CLIFFORD WHEATON, 47 W. 83d St., New York City.....	1894
VELIE, Dr. J. W., St. Joseph, Mich.....	1886

VICKERS, ERNEST W., Ellsworth, Ohio.....	1896
VILARO, DR. JUAN, Tampa, Fla.....	1888
WALCOTT, ROBERT, 11 Waterhouse St., Cambridge, Mass.....	1893
WALES, EDWARD H., Hyde Park, N. Y.....	1896
WALKER, DR. R. L., Carnegie, Pa.....	1888
WALL, EDWARD, San Bernardino, Cal.....	1894
WARREN, DR. B. H., Dept. of Agriculture, Harrisburg, Pa.....	1885
WARREN, OSCAR BIRD, Palmer, Mich.....	1892
WATERMAN, WILLIAM, Hay Springs, Neb.....	1896
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WEBB, WALTER F., Albion, N. Y.....	1891
WEEKS, DAVID FRANKLIN, Portland, Oregon.....	1894
WEIDMAN, JOE, Ames, Iowa.....	1893
WEST, JAMES A., Bloomington, Ill.....	1896
WEST, LEWIS H., Roslyn, Queens Co., N. Y.....	1887
WHITE, FRANCIS BEACH, Cambridge, Mass.....	1891
WHITAKER, WILLIAM LINCOLN, Cedar Grove, Philadelphia, Pa.....	1894
WHITMAN, PROF. CHARLES OTIS, Univ. of Chi., Chicago, Ills.....	1896
WHOLEY, W. N., 78 Grape St., Rochester, N. Y.....	1891
WICKS, M. L., JR., Los Angeles, Cal.....	1890
WILBUR, ADDISON P., Canandaigua, N. Y.....	1895
WILCOX, T. FERDINAND, 115 W. 75th St., New York City.....	1895
WILDE, MARK L. C., Camden, N. J.....	1893
WILLIAMS, J. BICKERTON, 116 University St., Montreal, Can.....	1889
WILLIAMS, ROBERT S., Columbia Falls, Montana.....	1888
WILLIAMS, W. J. B., Holland Patent, N. Y.....	1893
WILSON, SIDNEY S., St. Joseph, Mo.....	1895
WILSON, WILLIAM EDWARD, 387 Olney St., Providence, R. I.....	1894
WINTLE, ERNEST D., 11 Hospital St., Montreal, Can.....	1887
WOOD, NELSON R., Smithsonian Institution, Washington D. C.....	1895
WOODRUFF, FRANK M., Acad. Sci., Lincoln Park, Chicago, Ill.....	1894
WOODRUFF, LEWIS B., 14 East 68th St., New York City.....	1886
WOODWORTH, MRS. NELLY HART, St. Albans, Vt.....	1894
WORCESTER, PROF. DEAN C., Ann Arbor, Mich.....	1895
WORTHEN, CHARLES K., Warsaw, Ill.....	1891
WORTHINGTON, R. B., Dedham, Mass.....	1893
WORTHINGTON, WILLIS W., Shelter Island, Suffolk Co., N. Y.....	1889
WRIGHT, FRANK S., 51 Genesee St., Auburn, N. Y.....	1894
WRIGHT, MRS. MABEL OSGOOD, Fairfield, Conn.....	1895
WRIGHT, MISS NORA GIRALDA, Olneyville, R. I.....	1896
WRIGHT, SAMUEL, Conshohocken, Pa.....	1895
YEATON, ARTHUR CHARLES, Deering, Me.....	1895
YORKE, DR. F. HENRY, Foosland, Ill.....	1891
YOUNG, CURTIS CLAY, 395 Clermont Ave., Brooklyn, N. Y.....	1891

DECEASED MEMBERS.

ACTIVE MEMBERS.

Date of Death.

BAIRD, SPENCER FULLERTON	Aug. 19, 1887
GOSS, N. S.	March 10, 1891
HOLDER, JOSEPH B.	Feb. 28, 1888
JEFFRIES, JOHN AMORY.....	March 26, 1892
WHEATON, JOHN M.....	Jan. 28, 1887

HONORARY MEMBERS.

BURMEISTER, HERMANN.....	May 1, 1892
GUNDLACH, JUAN.....	March 14, 1896
GURNEY, JOHN HENRY.....	April 20, 1890
HUXLEY, THOMAS H.....	June 29, 1895
KRAUS, FERDINAND.....	Sept. 15, 1890
LAWRENCE, GEORGE N.....	Jan. 17, 1895
PARKER, WILLIAM KITCHEN.....	July 3, 1890
PELZELN, AUGUST VON.....	Sept. 2, 1891
SCHLEGEL, HERMANN.....	Jan. 17, 1884
SEEBOHM, HENRY.....	Nov. 26, 1895
TACZANOWSKI, LADISLAS.....	Jan. 17, 1890

CORRESPONDING MEMBERS.

BALDAMUS, EDUARD.....	Oct. 30, 1893
BLAKISTON, THOMAS W.....	Oct. 15, 1891
BOGDANOW, MODEST N.....	March 4, 1888
HAAST, JULIUS VON.....	Aug. 15, 1887
HARGITT, EDWARD.....	March 19, 1895
HOMAYER, E. F. VON.....	May 31, 1889
LYTTLETON, THOMAS, LORD LILFORD.....	June 17, 1896
MARSHALL, A. F.....	Oct. 11, 1887
MIDDENDORFF, ALEXANDER THEODOR VON.....	Jan. 28, 1894
PREJEVALSKI, N. M.....	Oct. 20, 1887
PRYER, HARRY JAMES STOVIN.....	Feb. 17, 1888
SCHRENCK, LEOPOLD VON.....	Jan. 20, 1894
SEVERTZOW, N.....	Feb. 8, 1885
STEVENSON, HENRY.....	Aug. 18, 1888
WHARTON, HENRY T.....	Sept. —, 1895

ASSOCIATE MEMBERS.

ADAMS, CHARLES F.....	May 20, 1893
ALLEN, CHARLES SLOVER.....	Oct. 15, 1893
ATKINS, H. A.....	May 19, 1885
AVERY, WILLIAM CUSHMAN.....	March 11, 1894
BECKHAM, CHARLES WICKLIFFE.....	June 8, 1888
BOLLES, FRANK.....	Jan. 10, 1894
BREESE, WILLIAM L.....	Dec. 7, 1889
CAIRNS, JOHN S.....	June 10, 1895
CORNING, ERASTUS, JR.....	April 9, 1893
COE, W. W.....	April 26, 1885
ELLIOTT, S. LOWELL.....	Feb. 11, 1889
FAIRBANKS, FRANKLIN.....	April 24, 1895
GESNER, A. H.....	April 30, 1895
GOSS, BENJAMIN F.....	July 6, 1893
HOADLEY, FREDERIC H.....	Feb. 26, 1895
HOWLAND, JOHN SNOWDON.....	Sept. 19, 1885
JENKS, JOHN W. P.....	Sept. 27, 1894
JOUY, PIERRE LOUIS.....	March 22, 1894
KUMLIEN, THURE.....	Aug. 5, 1888
LINDEN, CHARLES.....	Feb. 3, 1888
MABBETT, GIDEON.....	Aug. 15, 1890
MARIS, WILLARD LORRAINE.....	Dec. 11, 1895
MINOT, HENRY DAVIS.....	Nov. 13, 1890
NICHOLS, HOWARD GARDNER.....	June 23, 1896
NORTHROP, JOHN I.....	June 26, 1891
PARK, AUSTIN F.....	Sept. 22, 1893
RAGSDALE, GEO. H.....	March 25, 1895
RICHARDSON, JENNESS.....	June 24, 1893
SLATER, JAMES H.....	Feb. —, 1895
SMALL, EDGAR A.....	April 24, 1884
SMITH, CLARENCE ALBERT.....	May 6, 1896
STOWE, W. H.....	March —, 1895
THURBER, E. C.....	Sept. 6, 1896
VENNOR, H. G.....	June 8, 1884
WILLARD, SAMUEL WELLS.....	May 24, 1887
WOOD, WILLIAM.....	Aug. 9, 1885

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